REPORT RESUMES

ED 003 774
CAMPUS SCHOOL TO A RESEARCH AND DISSEMINATION CENTER.
BY- BIXBY, PAUL W. AND OTHERS
PENNSYLVANIA STATE UNIV., UNIVERSITY PARK
REPORT NUMBER NDEA-VIIB-374 PUB DATE 65
EDRS PRICE MF-$0.36 HC-$10.52 263P.

DESCRIPTORS- *LABORATORY SCHOOLS, *TEACHER EDUCATION, *EDUCATIONAL RESEARCH, *SCHOOLS, INSTRUCTIONAL INNOVATION, BUILDING DESIGN, UNIVERSITY PARK, PENNSYLVANIA

A SERIES OF REPORTS WAS PRESENTED ON COLLEGE-CONTROLLED AND COLLEGE-RELATED ELEMENTARY AND SECONDARY SCHOOLS, FOCUSING ON THEIR ROLE AND THE BETTER UTILIZATION OF THIS ROLE IN EDUCATIONAL RESEARCH, TEACHER EDUCATION, AND INFORMATION DISSEMINATION. THE REPORTS TRACE THE HISTORICAL BACKGROUND AND PRESENT IN DETAIL THE CURRENT STATUS AND FUTURE POTENTIAL OF SUCH SCHOOLS IN AMERICA. CONTEMPORARY AND CURRENT FUNCTIONS OF THE SCHOOLS WERE DISCUSSED, INCLUDING (1) EDUCATION OF PUPIL POPULATIONS, (2) PRESERVICE AND INSERVICE EDUCATION OF TEACHERS, AND (3) INNOVATION, RESEARCH, EXPERIMENTATION, AND DEMONSTRATION. EMPHASIS WAS PLACED ON THE FUTURE ROLE OF THE SCHOOLS IN SUCH AREAS AS INSTRUCTIONAL MEDIA AND MEDIA RESEARCH. ARCHITECTURAL AND EDUCATIONAL RESEARCH CONCEPTS WERE DEVELOPED FOR USE IN SCHOOL PLANNING EFFORTS. (JH)

U. S. DEPARTMENT OF HEALTH, EDUCATION AND WELFARE
Office of Education
This document has been reproduced exactly as received from the person or organization originating it. Points of view or opinions stated do not necessarily represent official Office of Education position or policy.

B-374

CAMPUS SCHOOL
TO A
RESEARCH AND DISSEMINATION CENTER

Prepared by

Dallas K. Beal

Paul W. Bixby (Co-Editor)

Bruce Brummitt

L. P. Greenhill

Harry Hutton

Robert L. Lathrop

Harold E. Mitzel (Co-Editor)

C. Herbert Wheeler

Norman D. White

The research reported herein was supported through Title VII (B) of the National Defense Education Act of 1958 (P. L. 85-864) administered by the Educational Media Branch of the Office of Education, United States Department of Health, Education and Welfare.

ED003774

LIST OF FIGURES

Figure | | Page
V-1 Classroom at Florida Atlantic University showing method of mounting ceiling television monitor 148

V-2 Language laboratory, Nova High School, Fort Lauderdale, Florida 149

V-3 Learning resources and study area, Nova High School 152

V-4 Removable acoustical ceiling tile showing space for coaxial cables and other utilities at The Pennsylvania State University 154

V-5 Classroom for large-group instruction, Syosset High School, Syosset, New York 155

V-6 Area for small group instruction, Nova High School 156

V-7 Audio-tutorial laboratory used in botany courses at The Pennsylvania State University. Eight millimeter cartridge loading film projectors are also used in conjunction with audio tape, printed materials and laboratory apparatus 159

V-8 Individual study carrel with video and audio presentations available on demand at Nova High School 161

V-9 Learning resources area with microfilm and microcard readers at Nova High School 163

V-10 Hallway showing observation window into classroom at Nova High School 166

V-11 Electronic switching and control center at Florida Atlantic University 168

VI-1 Proposed Scheme--Research, Development and Dissemination Center 174

List of Figures (Continued)

Figure		Page
VI-2	General Plan--Research, Development and Dissemination Center	182
VI-3	Perspective--Research, Development and Dissemination Center	183
VI-4	Sketch--Experimental Learning Facility	199
VI-5	Plan--Experimental Learning Facility	201
VI-6	Cross Section--Experimental Learning Facility. . .	202
VI-7	Floor System--Experimental Learning Facility . . .	204
VI-8	Partition System--Experimental Learning Facility.	205
VI-9	Ceiling System--Experimental Learning Facility . .	207
VI-10	Typical Layout--Experimental Learning Center. . .	214

TABLE OF CONTENTS

Chapter Page

I. Historical Background of the Campus School in America 1

  Indigenous American Forces 2

    State Normal Schools: Their Inherent Limitations 4

    The Model School--Its Limited Literature . 6

    The Model School's Original Functions . . . 8

    Normal School Texts 9

  Influences from Abroad 10

    Oswego and the Pestalozzian Influence 10

    Object Lessons 12

    Emphasis in Equipment and Media 13

    Influence of Herbartianism 15

  Normal School Opinion Divided 17

  The New Pedagogy and the New Laboratory School 19

    Judd at Chicago 23

    Meriam's School at Missouri 24

    Horace Mann-Lincoln School 26

    Caswell Explains and Advises 28

    Exeunt Normal Schools 29

Table of Contents (Continued)

Chapter | Page

Laboratory Schools and Surveys of Teacher Education 33

Commonwealth Teacher-Training Study . . . 35

The National Survey 35

American Council on Education Study 37

Histories of Normal Schools 37

Periodical Literature on the Campus School 38

Professional Associations and the Campus School 39

Individual Studies and Theses 42

Campus Schools at the Crossroads 48

Limited Use Made of Movies and Radio . . . 48

Significant Silence on Campus Schools 49

The Extreme Recommendation 51

A Ripple or a Wave? 52

Supporting Reading 55

II. The Status and Potential of a Representative Sample of College-controlled Laboratory Schools 58

Procedures for Gathering and Analyzing Data 60

Contemporary Functions 63

Teacher Education Opinions 64

Possible Future Functions 66

Table of Contents (Continued)

Chapter Page

Conclusions and Recommendations 67

III. Current Status of Selected College-related Schools 72

Selection of Schools to be Visited 74

Present Day Functions of College-related Schools 76

Education of Pupil Population 77

The Pre-service Education of Teachers . . . 78

In-service Education 80

Innovation, Research and Experimentation . 83

Factors Imposing Restrictions on the Campus School 85

Money 85

Faculty disinterest 86

Community relationships 86

Practicum and observation 88

Separate faculties in campus schools . . . 89

Research orientation not strong 90

Campus schools not flexible enough 91

By Way of Summary 93

Appendix 96

College-related Schools Visited in This Study 96

Table of Contents (Continued)

Chapter Page

IV. From a Campus School to a Research, Development and Dissemination Center 97

Goals for the New Research, Development and Dissemination Center 100

Cooperatively Developed Organization Patterns 104

College-owned, College-controlled Campus School 104

Public School-owned, College-contract Campus School 104

College-owned, Public School-controlled Campus School 105

The Cooperative College-Public School Research, Development and Demonstration Center 105

Programs to Emulate 108

Staffing the Center 112

The Building and Its Equipment 116

A Research and Development Orientation 119

Categories of Research 122

Studies of Teacher-pupil Classroom Interaction 123

Studies of Media Integration into Classroom Practices 124

Studies of Teaching Strategies 124

Studies of Learner Differences 125

Table of Contents (Continued)

Chapter Page

Studies of Environmental Effects on Learning Efficiency 125

Studies of Student Teaching Instruction . . . 126

Studies of New Curriculum Developments . . 126

Studies of Educational Innovations 127

A Final Word 127

V. Functional Requirements for Instructional Media and Media Research 130

The Role of the Existing Campus School in Media Research and Educational Innovation. . . 131

Specific Needs Which Could Be Served by Research-centered Schools 133

General Educational Research 133

Research on Educational Media 134

Needed Media Research in Which Research-centered Schools Could Play a Vital Role 136

Use of Combinations of Media 136

Research on Methods of Testing Using Media 136

Research on the Organizing and Sequencing of Instructional Resources Involving Combinations of Media, and the Recording of Learners' Responses 137

Field Testing of New Media Formats 138

Field Testing of New Instructional Equipment 140

Table of Contents (Continued)

Chapter Page

Research on the Physical Environment for Learning 141

Research on the Economic, Logistical and Management Aspects of Instructional Methods and Media 142

Studies of the Impact of the Introduction of New Media into a School System 143

The Need for Demonstration and Observational Facilities in Media Studies 143

Instructional Media as Tools for Educational Research and Dissemination 144

Facilities for Media Research in a Research-centered School 145

Functional Requirements for Media Research 145

Physical Requirements for Learning Spaces 146

Seeing 146

Hearing 147

Responding 150

Mental alertness 150

Access to Stimulus Materials and Instructional Equipment 151

Flexibility of Learning Spaces 153

Instructional Equipment for Use in a Research-centered School 157

Television 157

Table of Contents (Continued)

Chapter | Page

Learning Laboratory Equipment 158

Film and Slide Projectors 158

Overhead Projectors 158

Computer Terminals 160

Instrumented Study Carrels 160

Classroom Communicator Systems 160

Microfilm and Card Readers 162

Laboratory Apparatus 162

Audio Systems 162

Facilities for Demonstration, Observation, and Dissemination 164

Equipment for Demonstration and Observational Facilities 165

General Comment 169

VI. An Architectural Concept for Learning Experimentation 171

Introduction 172

An Architectural Scheme for a Research, Development and Dissemination Center 172

The Concept 172

General Plan 173

Schools-within-a-school Concept. 175

University Research Facility 175

Table of Contents (Continued)

Chapter

Page

Elementary School Unit 176

Secondary School Wing 177

Space Characteristics for Learning Experiments 177

Concept of a Stage Production 179

Concept of Multiple Productions 180

Architectural Plan 181

General Architectural Requirements 181

Experimentation Incognito 181

Equipment for Control of Experiments 181

Effect of Environment 184

Responsive Environment 185

Architectural Design of Space 186

Student Appeal 188

Demonstration and Dissemination 190

Operations 191

Design for Change 192

Versatility 193

Flexibility 194

Complexity Unseen 196

Architectural Specifications--Experimental Learning Facility 198

Table of Contents (Continued)

Chapter Page

Building-within-building Concept 198

Systemization of the Experimental Facility . 200

Floor Sub-system 203

Ceiling Sub-system 206

Lighting System in Ceiling 208

Sound Control 209

Seating 210

Architectural Doors, Windows and Features 210

Provision for Power and Communication Service 211

Provision for Monitoring and Recording Experiments 211

Provisions for Set-up of Learning Environment 212

Typical Experimental Set-ups 213

Architectural Specifications--Research Staff Offices 213

General Layout 213

Office Plan 215

Functioning of Office Space 216

Learning Resources Center 216

Materials Production Center 217

Conclusion 218

Table of Contents (Continued)

Chapter Page

VII. The Dream Can Become Reality! 220

The Sacred Trust 221

Can the Scales Be Balanced? 222

Yea: Advantages, Learning Increments . . . 223

Motivation of staff and pupils 223

Quality of staff 224

Training for change 224

Reducing educational lag 225

Marriage of the teacher, the scholar and the researcher 226

Research and development 226

Parsimony--materialist considerations . 227

Nay: Losses, Threats, Dangers 227

Lack of continuity. 227

Educational deficiency. 228

Dual goals or value systems. 229

Dual responsibilities. 230

Public suspicion. 230

Invasion of privacy 231

Solution of someone else's problems . . . 232

Theory, Research and Practice 233

Table of Contents (Continued)

Chapter Page

The Plan in Action 233

Securing Public Support 241

Securing Support from the Board of Education 241

Securing Support From the Community . . . 242

Securing Staff Support 244

To Those Who May Still Doubt 246

CHAPTER I

HISTORICAL BACKGROUND
OF THE CAMPUS SCHOOL IN AMERICA

Harry Hutton
Professor of Education
The Pennsylvania State University

PRECEDING PAGE BLANK-NOT FILMED

It is the common custom of those writing about teacher education and training in the United States to go back about four hundred years for a running start. References are ordinarily made to Jesuit pedagogy of the late sixteenth century, to La Salle's normal school at Reims (1685), to Basedow at Dessau in the 1770's and eventually, by way of Pestalozzi at Yverdon, to the nineteenth century founding of state teachers' seminaries in Prussia and normal schools in France. Since the two latter institutions aroused lively interest in America, the impression may be created that one thing led to another--that we have, in fact, an unbroken chain whose links are clear. The theory is somehow inspiring. The truth is that over-simplification could hardly be carried further.

Indigenous American Forces

A reasonable case can be made out for the thesis that teacher training in the United States was of indigenous origin.[1] Certainly things were stirring here long before Victor Cousin, of France, and Calvin Stowe, of Ohio, wrote two of the half-dozen reports that did so much to focus attention on Prussian state institutions established in 1819 for the preparation of elementary teachers. Some of the academies, including the first one in Philadelphia (1751), had at least dabbled in teacher training.[2] A letter to the editor of the Massachusetts Magazine of June, 1789, advocated county grammar schools which would prepare young men for school-keeping.[3] Speeches had been made on the need for training, a notable one at Yale College by Denison Olmstead in 1818. Hall's private and pioneer teachers' seminary, started in 1823, can hardly have been inspired by publicity about European institutions of the 1830's.

---

[1] Cubberley, E. R. Public Education in the United States. New York: Houghton-Mifflin, 1919, Chapter X.

Lamb, P. M. The Laboratory School: An Historical Perspective. Journal of Educational Research, 36: 107-109, October 1926.

Napier, T. H. Trends in the Curricula for Training Teachers. George Peabody College for Teachers, Contributions to Education, No. 27. Nashville: George Peabody College for Teachers, 1926.

The remarkable work in teacher training of Professor Amos Eaton at Rensselaer, which began on the founding of that institution in 1824, has had scant notice in histories of education. It is a matter of record that many academy and college teachers of science were prepared, and well prepared even in the use of visual aids, under a system proudly called "Rensselaerean," to emphasize that it followed no European example.[4] A statement in a prospectus of 1827, attributed to Eaton, denounces the current habit of some American educators of paying homage "to everything European" and labels "invidious" certain efforts made "to trace the Rensselaerean plan to some supposed shade of it on the other side of the Atlantic."[5]

---

[2] Wickersham, J. P. A History of Education in Pennsylvania. Lancaster: Inquirer Publishing Co., 1886, p. 606.

[3] Gordy, J. P. Rise and Growth of the Normal School Idea in the United States. Bureau of Education. Circular of Information No. 8. Washington: Government Printing Office, 1891, p. 9.

[4] Ricketts, P. C. History of Rensselaer Polytechnic Institute 1824-1934. New York: Wiley, 1934, pp. 43-57.

The indigenous argument is unquestionably pushed too far if considerable indebtedness to Europe is not acknowledged. Among early champions of the cause there were some like Rev. Charles Brooks who thought that "glorious results" would ensue from initiating the Prussian system of teacher training.[6] Elsbree cautions us not to classify the American normal school as "wholly indigenous."[7] Gordy gives a well-balanced statement when he says, "What the influence of European training schools accomplished was to strengthen and accelerate a movement which had an independent (American) origin."[8]

State Normal Schools: Their Inherent Limitations

Massachusetts, whose own schools had deteriorated to an alarming extent, reasserted its historic leadership with the founding at Lexington of the first state institution in this country for the training of elementary teachers. The year was 1839 and Cyrus Peirce was the principal.

---

[5] Ibid., pp. 49-50.

[6] Luckey, G. W. A. The Professional Training of Secondary Teachers in the United States. New York: Macmillan, 1903, p. 52.

[7] Bereday, G. Z. F.; and Lauwerys, J. A. (Ed.). The Education and Training of Teachers. The Yearbook of Education, 1963. London: Evans Brothers, 1963. (Section I: Chapter four, Section II: Chapter six, Section IV: Introduction, and Chapters one, three and five), p. 178.

[8] Gordy, op. cit., p. 21.

"Normal School" was an unfortunate name. To English-speaking people it carried none of the significance of "normale" in the French "école normale." There was something at least faintly ridiculous about the term and an automatic suggestion of its antonym. It was inevitable that a satirist would one day write a story about a school called "Fairly Normal." More than one early principal was amused or annoyed when he was associated with a "Norman School" or even a "Mormon School."

We can see plainly enough now that our first teacher-training institutions were destined to labor under many handicaps. Peirce had more than his share of experiences that were "dismal and discouraging."[9] Resented by academies and scorned by colleges, having to make their way for years before any state legislature dreamed of setting any requirements for certification, the normals were essentially deadend schools.[10] They were post-elementary, semi-secondary at best, but in no way connected with higher education. Here the European influence seems painfully clear.

---

[9] Norton, A. O. The First State Normal School in America. The Journals of Cyrus Peirce and Mary Swift. Cambridge: Harvard University Press, 1926, p. 52.

[10] Boyden, A. C. The History of Bridgewater Normal School. Bridgewater, Mass.: Bridgewater Normal Alumni Association, 1933, p. 68.

Many of the trials and tribulations were mercifully concealed from Horace Mann, and, it is to be hoped, from James G. Carter, pre-eminent in the campaign for teacher training as early as the 1820's. When the former spoke at the official opening of a new Bridgewater Normal School Building in 1846, it was his judgment that, "Coiled up in this institution, as in a spring, there is a vigor whose uncoiling may wheel the spheres."[11] One hundred and eighteen years later it is safe to say that Horace not only rose to the occasion but soared well above it. So slowly did the whole teacher training movement gain ground in Massachusetts that it was not until 1904 that 50 percent of the teachers in the Commonwealth (7,392 out of 14,741) had attended normal school, of whom 42.7 percent had actually graduated.[12]

The Model School--Its Limited Literature

It is not the purpose of this chapter to recount in detail the history of American normal schools and of their successors, the teachers and state colleges. Part of that task was undertaken to mark the centennial of the founding of Lexington Normal School, and the product, obviously a labor of love, was a creditable little book recording many accomplishments, often under desperately difficult conditions.[13]

---

[11] Cubberley, op. cit., p. 293.

[12] Mangun, U. L. The American Normal School. Baltimore: Warwick and York, 1928, p. 325.

[13] Harper, C. A. A Century of Public Teacher Education. Washington: National Education Association, 1939.

A more scholarly work should be consulted for the development of teacher education in America from 1890 to 1950.[14] Of a comparatively recent contribution it is fair to say that its considerable merit would be greater if it were not so lamentably vague on a subject of high importance.[15] We read that there have been "notable. . . experimentation and other forms of research" in laboratory schools[16] but must be content with this generalization, since nothing specific is cited.

A disconcerting fact to be faced at the outset is that the institution of our concern, which has rejoiced in so many different names, which we shall feel free to use interchangeably, e.g. model school, practice school, experimental school, laboratory school and campus school, to list but five, still lacks a body of solid literature. If articles without number have been written about it, few of them have been of more than passing interest and many have been trivial indeed. Attention will be given in due course to some doctoral theses, but when reliable and inclusive educational reference works hardly notice the model school and its lineal descendants, however flamboyant their titles, there is no need to spell out the moral.

---

[14] Monroe, W. S. Teaching Learning Theory and Teacher Education 1890 to 1950. Urbana: University of Illinois Press, 1952, Chapters 10-12.

[15] Stiles, L. J.; Barr, A. S.; Douglass, H. R.; and Miles, H. H. Teacher Education in the United States. New York: Ronald Press, 1960.

[16] Ibid., p. 247.

The Model School's Original Functions

A standard feature of the pioneer normal--though it was discontinued in Massachusetts for some forty years because of special problems--was the model school or department. In its simplest form it was a roomful of elementary pupils more or less like those to be found in a district school. On a more ambitious scale it consisted of several rooms on a graded system.

The "model" idea was exemplified in three ways. There was model teaching, often by the normal school principal himself. There was model discipline. And there was model equipment. If the latter originally signified nothing much beyond a real blackboard, serviceable seats, a globe and a couple of maps, it represented a sound and promising principle. Somewhere along the line it was either forgotten or taken as a goal achieved. Had teacher-training institutions considered it a prime duty across the years to keep abreast of "model equipment" they would not be open to the charge of failing to exploit the possibilities of the phonograph, the motion picture, the radio, and other special media.

Priority was soon given to demonstrating perfect teaching and control. Since it is axiomatic that perfection cannot be improved, the master had no need to experiment. He gave demonstrations of an ideal "method," conceivably of different methods (e.g. lecture or recitation) and was closely observed by the normal school students who eventually tried their hands at practice teaching and were judged against the standard set by the expert. In some institutions there was a practice school as well as a demonstration school. But mutatis mutandis, a master teacher, later to assume the role of critic, demonstrated ideal teaching and classroom control before an audience likely to be exhaustively divisible into mer boys and girls recently graduated from elementary school and some older students who had taught for a while and then decided, out of ambition or desperation, to see if a short sojourn at a normal school would be of any use to them. Since attendance was voluntary, one student might stay for a year; another, for a few weeks.

It was a long time before the normals were firmly enough established and of sufficient prestige to have entrance requirements of any significance or to extend the course to two years, let alone three or four. Albany set a rigorous standard in 1890 by demanding high school graduation and made a verbal breakthrough by substituting "experimental" for "model" school.

Normal School Texts

One can obtain helpful insights into both the academic and the vocational sides of the early normal schools by examining two of the most popular texts. In justice to them it should be said that they are far from being the worst books ever written in the field of teacher education. Hall's thirteen lectures on "School-Keeping" are not without absurd touches but may still be read with profit by the teacher of today.

They bespeak dedication of the highest order.[17] David Perkins Page's Theory and Practice of Teaching, first published in 1847 and admittedly designed for "the inculcation of practical views to promote the improvement of the teacher" is much more than a list of teaching tricks. Its insistence on scholarship and its warnings against preoccupation with method have a familiar ring. Its "miscellaneous suggestions" are largely to the point in 1964.[18]

"Anecdotal," in a respectful sense, is the best one-word description of those texts. To know that they were typical of pedagogical books used in many normal schools from the 1840's until the last quarter of the century is to know that main faith was put in the supposedly tried and true.

Influences from Abroad

Oswego and the Pestalozzian Influence

The first strong influence toward transforming the normal into some slight semblance of a professional school was Pestalozzianism in Anglicized version. The original doctrine unashamedly declared that love was the essential thing in good teaching, emphasized the importance of the education of "head, heart and hand," was grounded in sense impressionism and was especially concerned with the social regeneration of underprivileged children and their spiritual development. It was, in a word, many-sided and altogether refreshing. If the complete gospel of Pestalozzi was rarely adopted by those who invoked his name, his theories and methods offered a wide choice and any judicious selection was likely to improve an average school or teacher-training institution throughout most of the nineteenth century.

---

[17] Wright, A. D. and Gardner, G. E. Hall's Lectures on School-Keeping, an exact reproduction of the first (1829) edition to which is appended an account of the life and works of the author. Hanover: Dartmouth Press, 1929.

[18] Page, D. P. Theory and Practice of Teaching. New York: American Book Co., 1885 (first edition 1847), pp. 344-387.

Oswego Normal School under Edward Sheldon became the powerhouse of abridged Pestalozzianism in America. It went lock, stock and barrel for sense impressionism and the immortal "object lessons." And for all its dubious faculty psychology, the "Oswego Movement" marked a great advance over drill-room teaching and the type of teacher training associated with it.

In what is probably the definitive work on Oswego, one will find some fifteen object lessons outlined by Sheldon.[19] They illustrate principles and techniques familiar enough now but so novel in American teacher training in the 1860's that Oswego dominated the field well into the 1880's. "Things before words" and "acquiring percepts through all the senses" were explicit or implicit in the Sheldon methodology. Oswego boasted both a model school where high-quality teaching was demonstrated and a practice school for student teaching. We are told that this system established a precedent among state institutions for teacher training.[20] The author of a recent book on Oswego says that Sheldon "founded the school which set the pattern for all the normals in New York State and for the great majority across the country."[21] The fact that state normals increased from 16 in 1860 to 61 in 1872 to 80 in 1880 may well have been due in part to the contagious Oswego example.[22]

---

[19] Dearborn, N. H. The Oswego Movement in American Education. Teachers College, Columbia University. Contributions to Education, No. 183. New York: Teachers College, Columbia University, 1925.

Object Lessons

When such a subject as leather or the orange or the horse was under study in Sheldon's school, either the actual thing itself or a model or a picture of it was utilized to the full. Globes, maps and other apparatus, perhaps made in the manual training department, helped to build the percepts which led to concepts. The skillful questioning of the teacher set the inductive process into action and in scheduled time the scholars arrived at generalization, on occasion even at application.

The reader may have an uneasy feeling when he finds that the model object lesson on an orange reached its climax with the triple-discovery that that particular fruit is "opaque, impressionable, and sapid."[23] But at least the orange had been seen, handled, rubbed and smelled. This was a vast improvement on the Gradgrind system of teaching satirized by Dickens and followed by schoolmasters from time immemorial.

---

[20] Ibid., p. 106.

[21] Rogers, Dorothy. Oswego: Fountain Head of Teacher Education. New York: Appleton-Century-Crofts, 1961, p. 75.

[22] Ibid., p. 83.

A normal school historian summarizes the Oswego movement by saying: "Its major contribution was to emphasize the bringing of many types of real materials into the schoolroom, thereby teaching through actual experience with, and manipulation of, concrete objects. To say that the object lessons degenerated into an absurd formalism, is to state the usual about anything new which is interesting enough to call forth the fanatics and faddists."[24]

Emphasis in Equipment and Media

It was probably more than a coincidence that in 1886 when the fame of Oswego and its object lessons was spreading throughout the land, Henry Barnard, alert to every promising trend and indefatigable in the cause of teacher training, gave prominence in his American Journal of Education to an illustrated article on "Apparatus." We find listed "indispensable articles in schools of every grade."[25] There is a reminder that though permanent material is good, "as far as practicable the real object in nature and art, and not a diagram or model should be secured."[26] Then follows the list, beginning modestly enough with a clock, but progressing through "the cardinal points of the heavens, painted on the ceiling, or on the teacher's platform, or the floor of the recitation room," to a terrestrial globe, a gonograph, and an arithmeticon, a dozen or so items in all, including wall and moveable blackboard which apparently could still not be taken for granted. For good measure, the Journal article included directions for making crayons, kindly supplied by Professor Turner of the American Asylum for the Deaf and Dumb.[27] A self-respecting model school would hopefully meet this minimum standard for equipment.

---

[23] Dearborn, op. cit., p. 157.

[24] Harper, op. cit., p. 122.

[25] Barnard, Henry (Ed.). American Journal of Education, 16: 569-578, 1866.

In his history of Bridgewater Normal, Boyden makes a special point of the variety of visual material which it employed in the 1880's. There were sets of weights and measures, geometric forms, whole and dissected home-made apparatus used in physics and chemistry, living plants and animals. "In 1884 an industrial laboratory was set up in the school, with nine carpenters' benches and tools, a turning lathe and jigsaw, in which the (normal) students were instructed in the use of tools in making sets of inexpensive apparatus for use in the different studies in the course."[28]

The combined impact of Bridgewater and Oswego in American teacher education was unquestionably great. Their graduates became normal school principals and staff members in many states besides Massachusetts and New York. Systematic "follow-ups" were not attempted in the nineteenth century but there is tangible as well as presumptive evidence that the progressive practices of Bridgewater and Oswego were carried afar by enthusiastic former students. These were clearly outstanding institutions, impressive examples of normal schools at their best.

---

[26] Ibid., p. 569.

[27] Ibid., p. 574.

[28] Boyden, op. cit., pp. 39-55.

The period from 1865 to 1885 may be considered as one in which considerable attention was given to the use of visual aids in teacher education. But a healthy momentum appears to have slackened greatly by 1890. The Herbartian Movement was now under way.

Influence of Herbartianism

It was only natural that a German professor of Philosophy who became absorbed in the study of pedagogy and psychology would exercise whatever influence he had in behalf of the intellectual and toward reducing instruction itself to a logical system. Herbart had considerable influence in his lifetime (1776-1841), having achieved the height of academic respectability when he succeeded to the chair of Immanuel Kant at Konigsberg. He made no particular name in philosophy, but in psychology and pedagogy, where competition was less than brisk, he was a commanding figure. Through his ardent disciples and his writings, not only learned but often impressively abstruce, he had tremendous influence for a good sixty years after his death.

When it is a matter of singling out one American scholar who went to Germany, studied Herbartian theory and returned to this country to propagate the gospel, the honor must go to Professor Charles De Garmo. And as Oswego Normal School had been the great Pestalozzian centre, so Illinois State Normal University led the Herbartian Movement in teacher education. The Middle Western institution had an impressive name to start with, wisely chosen on its founding in 1857, before there was a state university. It was a good cut above the other normal schools and "was to prepare teachers for all branches of the common schools, including high schools. Its graduates were supposed to become educational leaders as well as elementary teachers."[29]

De Garmo and his fellow Herbartians, Frank and Charles McMurry, effectively expounded the doctrines of "apperception," "correlation" and "concentration." They dwelt on the importance of "interest," both extrinsic and intrinsic. They popularized the "five formal steps" that made for model teaching and justified "general methods" courses.

All of this has a different ring from the object lessons of Oswego and the manual training laboratory at Bridgewater. It put no premium on special equipment or media. Elementary science and local geography were all very well, but the subjects of special worth were literature and history. They were ideally suited to the inculcation of sound morality, the esse of Herbartianism.

---

[29] Harper, op. cit., p. 80.

In a word, the late 1880's and the 1890's in American teacher education were years when the profession undoubtedly gained sorely needed prestige and when the subject of education itself was widely deemed to be worthy of a place on university time-tables. It would be gratifying to add that under the intellectual stimulus of Herbartianism normal schools and their model schools gave vigorous leadership in developing a science of education whose hall-marks were research and experimentation. No such claim can be made.

Normal School Opinion Divided

Sharp differences of opinion among normal school leaders are very much in evidence in the last decade of the nineteenth century. The familiar argument about the relative importance of the "academic" and the "professional" courses was heard even then. Harper says thatc a debate went on from 1860 to 1900 over the proper function of practice and model schools. "There seems to have been a general feeling that practice school conditions should duplicate as closely as possible those the students would meet in the field. It was also pointed out that model and experimental schools should be developed to test and demonstrate new and better techniques and teaching materials."[30]

---

[30] Ibid., pp. 118-119.

One cannot forebear to remark that those who sounded the call to experimentation seem to have had no appreciable response.

Tempting as the theme is, it is beyond the purpose of this chapter to go into the arguments and quarrels among the teachers of teachers of another day. The sparks that flew attested to an interest that would have delighted Herbart. But one looks in vain for any far-reaching results. No rash of experimentation broke out. High school enrollment started its sky-rocketting rise in the 1890's and there was an inevitable improvement in the academic qualifications of the young men and women entering normal schools.

De Garmo had passed a sharp judgment in the late 1880's. "Whatever the average American normal school may now be," he said, "in its very recent past it might have been fitly defined as a high school with a training attachment, having the limitations of a low grade high school, and the ambitions of a high grade college."[31] Nicholas Murray Butler was less severe. He was bound to admit, however, that he thought of normal schools as "academies or high schools with a slight infusion of pedagogic instruction."[32]

There was undoubted improvement in the 1890's. Colleges and universities were coming into the teacher education picture in steadily increasing numbers and showing a special interest in the training of secondary teachers. The trend had been under way before the Herbartian movement began. The wild precedent set by Washington College in Pennsylvania, which established a department of education in 1831,[33] was vindicated with a vengeance. Iowa, Michigan and Wisconsin were among the first of the better-known universities to enter the field, the former two in the 1870's.

---

[31] National Education Association. Addresses and Proceedings, 1887, p. 489.

[32] Pangburn, J. M. The Evaluation of the American Teachers College. Teachers College, Columbia University, Contributions to Education, No. 500. New York: Teachers College, Columbia University, 1932, p. 29.

Although there was room for all, there is no recorded story of cooperation or of good communication between normal schools and institutions of higher education engaged in the training of teachers. Nor was there any noticeable competition in anything that might pass for experimentation or the testing of fresh ideas. The voice of reaction spoke out strongly when W. H. Payne denounced as "a sprightly troop of hobbies" the distinctive features of Herbartianism. In effect he warned his co-workers in teacher education not to be tossed to and fro by any new winds of educational doctrine.[34]

The New Pedagogy and the New Laboratory School

When John Dewey launched his famous laboratory school at the

---

[33] Cremin, L. A. The Heritage of American Teacher Education. Journal of Teacher Education, 4: 163-70, June 1953, p. 167.

[34] Payne, W. H. The Training of the Teacher. Educational Review, 16: 467-478, Dec., 1898.

University of Chicago in 1896 he broke sharply with the normal school --model school tradition. He apparently found little in it that he was eager to retain. He had kinship with F. W. Parker, who had been at Cook County Normal School since 1883, but Parker was far removed from what would now be called the mainstream of American teacher education. He was well described as a prophet rather than a philosopher. He was undoubtedly colorful and a man with definite views, cherished the more deeply if they offended the orthodox. In the kingdom of his own school he decreed geography to be the subject of supreme importance, since it unites the "two all-embracing subjects of study, man and nature."[35] He set up a school museum with hundreds of specimens illustrating "facts of nature" and products of art and industry from all parts of the globe.[36] He made extensive use of pictures, and drew on a supply of 20,000 clippings and illustrations selected, mounted and catalogued by Mrs. Parker.[37]

Of the three great European influences on teacher training in this country, it was neither Pestalozzianism nor Herbartianism, but rather Froebelianism that affected Parker and Dewey. For all his mystical ideas about cubes and spheres, Forebel has gone to the heart of the matter when he depicted the school as a miniature but model community in which active and happy pupils were developing socially, mentally and morally through games and play and other means that made sense to them and to their wise and sympathetic teachers. There was much more in Froebelian theory but this was the part of it that had Dewey's abiding allegiance.

---

[35] United States Bureau of Education, Report of the Commissioner of Education for 1902, Chapter 4. Washington: Government Printing Office, 1903, p. 256.

[36] *Ibid.*, p. 235.

[37] *Ibid.*, p. 274.

Mayhew and Edwards have given us the complete story of the famous laboratory school. Their book may be taken as authorative; it bears, indeed, the imprimatur of John Dewey. Three statements are of particular importance. And it may be observed, parenthetically, that part of the first and all of the third are in line with the view that many educators have today of a campus school that they can support.

1. "The school was a laboratory for the department of Psychology and Pedagogy where Mr. Dewey's educational theories and their sociological implications were worked out in accord with the then new psychological principles and in association with colleagues and students, the teachers in the school and the parents of the pupils. It was never a 'practice' school."[38]

2. "The main hypothesis was that life itself, especially those occupations and associations which serve man's chief needs, should furnish the ground experience for the education of children."[39]

3. "Conducted under the management and supervision of the

---

[38] Mayhew, Katherine Camp and Edwards, Anna Camp. The Dewey School. New York: Appleton-Century, 1936, p. v.

[39] Ibid., p. VI.

university's Department of Philosophy, Psychology and Education, it bore the same relation to the work of the department that a laboratory bears to biology, physics or chemistry. Like any such laboratory, it had two main purposes: (1) to exhibit, test, verify and criticize theoretical statements and principles; and (2) to add to the sum of facts and principles in its special line."[40]

The activities of Dewey's school were of an amazing number and variety. A modern teacher will note with relief that in 1902 when the pupils reached their maximum total of one-hundred-and-forty, "the teaching staff increased to twenty-three teachers and instructors, with about ten assistants (graduate students of the university)."[41] But one can readily believe that all were busy when he considers not only the classroom lessons and discussions, but the field trips, the gardening, the cooking the weaving, the pottery, and such a formidable undertaking as the furnishing and decorating of a sizeable clubhouse.[42] The thirteen-year-olds experimented with simple photography and every one of the eleven different "groups," had its full quota of special experiences.

Here was unquestionably a unique school. Whether it was a "laboratory in a really scientific sense is a good question. Here we must remark the fact that of teaching "media" in the usual sense there was very little. There was raw material in plenty, clay, wool, lumber, and so on. It was the pupils who made and grew and raised things. The school did not simply confront and teach them with the ready-made. It apparently did not utilize motion pictures which were in vogue before Dewey left for Columbia.

---

[40] Ibid., p. 3.

[41] Ibid., p. 8.

[42] Ibid., pp. 228-233.

The Chicago laboratory school was grounded in and dedicated to a particular educational philosophy. All in all, it was something different and adjudged good by those who knew it best, pupils, staff, parents and a corps of university professors who delighted to act as consultants.

Judd at Chicago

The death of Parker and the departure of Dewey were soon followed by a new order in Chicago. To C. H. Judd, long-time critic of the unscientific goings-on in education, there was something vague and slippery about such a Dewey slogan as "harmonizing individual traits and social ends." Judd, no less than Thorndike, was interested in experimentation and research culminating in results that could be measured.

Judd became Director of the University of Chicago School of Education in 1909. The laboratory school was much less exciting than in Dewey's time but it was a leading Progressive who wrote that "under Judd's stimulation, a decade-and-a-half of active laboratory analysis of learning in reading, handwriting and arithmetic was inaugurated."[43] Chicago's many contributions to the testing movement are spelled out in a book written by one who served on the staff for thirty-two years.[44]

Meriam's School at Missouri

But if the Chicago of Judd settled down to such calm procedures as the filming of eye movements in reading, several schools carried on in the Parker-Dewey tradition. Prominent among them was one at the University of Missouri. It was directed by Junius Lathrop Meriam.

In their Schools of Tomorrow, first published in 1915, John and Evelyn Dewey gave a chapter to thei particular Elementary (Laboratory) School. It contains much about field trips and other activities but nothing on the use of special instructional media.[45] Phillips took up the story a few years later.[46] He gave a detailed account of one of the famous field trips, a sixth grade visit to the Boone County Trust

---

[43] Rugg, H., Curriculum Making in Laboratory Schools, Chapter V in Twenty-Sixth Yearbook of the National Society for the Study of Education. Part I. Bloomington: Public School Publishing Co., 83-116, 1926, p. 97.

[44] Depencier, Ida B. History of the Laboratory Schools of the University of Chicago. Chicago: University of Chicago, 1960, p. 61ff.

[45] Dewey, J. and Dewey, Evelyn. Schools of Tomorrow. New York: Dutton, 1920, Chap. III.

[46] Phillips, C. A. Some Features of Curriculum-Making in the Elementary School of the University of Missouri, Twenty-Sixth Yearbook of the National Society for the Study of Education. Bloomington: Public School Publishing Co., 1926, pp. 341-347.

Company, complete with the pupils' rigorous cross-examination of the treasurer.

From all accounts the school associated with Meriam's name was an unusual and bustling one. Like Parker's it was guaranteed to "terrify the conservative." It was a school where "subjects" in the ordinary sense were abolished, where what came to be known as "block-scheduling" replaced the standard class periods of so many minutes, where something like an advanced core curriculum with emphasis on personal problems of living was in operation. But if such instructional devices as movies, slides and the newly-invented radio of the 1920's were used at this *avant-garde* Missouri school, we have found no record of them.

Of similar schools which were undoubtedly "experimental" as traditional model schools never were, one may read sympathetic descriptions in the Deweys' book. That they were the heralds of "schools of tomorrow" seems so far to have been an overly-optimistic view. For if they scandalized old-line educators they were also found wanting by those who reverenced not tradition but the canons of science and measurement.

Bonser spoke out strongly, and it would appear with considerable effect, when he was sharply critical of the claims made by many of the new-type experimental schools. He examined eleven of them and charged that on the whole they appraised their work subjectively and philosophically, rather than scientifically.[47] He went on to say, "There is provision for no testing of results in comparison with results from control situations which would afford objective evidence of measurable differences in achievement, if such exist. Both the amount (sic) and value of achievements claimed, rest upon assertion rather than upon incontrovertible evidence."[48] The laboratory schools at the Universities of Iowa and Chicago and Lincoln School in New York were given a good bill of health. Bonser considered that they "employed the most thorough-going scientific procedure" in curricular experimentation.[49]

Horace Mann-Lincoln School

Anything like the detailed story of the thirty years of experimentation and research first at Lincoln School (opened in 1917) and then at Horace Mann-Lincoln (merged in 1943) must be sought elsewhere. _A History of Teachers College, Columbia University_ is assumed here to be a reliable source. _Teachers College Record_ of February, 1963, is devoted to Lincoln School. It is strong on "integration" but says nothing about special media.

The chief emphasis at the separate and later at the combined laboratory school was on curriculum. Lincoln from the first was to be "a laboratory for the working out of an elementary and secondary curriculum which shall eliminate obsolete material and endeavor to work up in usable form material adapted to the needs of modern living."[50] Under a distinguished and devoted staff, a vast amount of curriculum material was developed, tests, workbooks, units, etc. The implications of child development and of social change were considered vitally important in all that was planned and tested.

---

[47] Bonser, F. G. Curriculum-Making in Laboratory Schools. Twenty-Sixth Yearbook of National Society for the Study of Education, Part I. Bloomington: Public School Publishing Co., 1926, p. 360.

[48] _Ibid._, p. 361.

[49] _Ibid._, p. 360.

Visitors came in embarrassing numbers to have a close look at this 6-3-3 laboratory school that was doing away with the obsolete and creating the modern. But somewhere there seemed to be a fatal weakness that prevented Lincoln and the merged Horace Mann-Lincoln School (1944-1947) from having any great influence on school systems throughout the country. The fact that the pupils paid tuition fees and fees that were much more than nominal (from $200 to $300 a year in 1917 and within ten years from $300 to $500) introduced a selective factor not found in the public schools. When one reads that 75 of Lincoln's first 78 graduates went on to college the selectivity becomes dramatically obvious.[51]

In terms of experimentation that was widely applicable, Horace Mann-Lincoln "proved a disappointment" and its fate was definitely sealed when it was a "disappointment financially" as well.[52] The doors were closed at the end of the 1947-1948 school year.

---

[50] Cremin, L. A.; Shannon, D. A.; and Townsend, M. E. A History of Teachers College, Columbia University. New York: Columbia University Press, 1954, p. 110.

[51] Ibid., p. 112.

Caswell Explains and Advises

Not long after the passing of Horace Mann-Lincoln School there sppeared in Teachers College Record an article by Dean Hollis L. Caswell which explained the administrative decision. "It was our judgment that a school lacking a normal community setting and with a student body highly selected with regard to intellectual ability, social background, vocational goal, and probable college attendance, held little promise for experimentation of wide significance. . . . Would not experimentation be more significant if undertaken in several schools in cooperation?"[53]

Caswell gave some technical advice to laboratory schools in general by recommending what was then considered to be "experimenting with the provision of an observation room adjoining a (campus school) classroom, with intervening wall constructed of one-way vision glass. Sound connections with the classroom would permit the observer to hear what was said in the classroom but would make it possible to talk in the observation room without being heard in the classroom."[54] We have no information on how common such an arrangement is now but have heard and read of it often enough to conclude that it is no longer novel.

---

[52] Ibid., p. 235.

[53] Caswell, H. L. The Place of the Campus Laboratory School in the Education of Teachers. Teachers College Record, April 1949, 50: 449.

[54] Ibid., p. 447.

Caswell deplored the fact that "student teaching was the major purpose served by most campus laboratory schools" in 1949. "The prospective teacher should have experience in situations of the type in which he will have to teach." Moreover, "too great a concentration of student teachers in a school gives it an unreal atmosphere."[55]

There followed a thoughtful suggestion. "It is quite possible that arrangements that enable the student experiencing difficulty to secure for use in self-analysis a recording, and possibly a motion picture, of a period of work with a group of children, would be a very effective teaching device. Obviously, such equipment would require special arrangements and could not be generally available, but it might be provided in certain classrooms in a campus laboratory school."[56] If Caswell's suggestion were adopted anywhere we have found no account of it.

Exeunt Normal Schools

During the years when "experimental schools" like Dewey's and Meriam's and Lincoln were attempting to blaze new trails, the normal schools were being transformed into teachers colleges. For all their limitations, they had created a standard of sorts and done something to develop the concept that teaching could be a profession.[57] They had proliferated with a truly wild abandon by 1900, what with those that were state-controlled, those that were under city boards of education, the private ones and an unnumbered host of county institutions. And as if any further complication were needed, more and more colleges and universities throughout the country were coming into the teacher training field. An era of competition for enrollment had begun.

---

[55] Ibid., p. 447.

[56] Ibid., p. 448.

The significant thing to be noted here is that the great expansion of facilities for teacher education was not accompanied by a corresponding increase in laboratory schools. In the 1840's and 1850's a model school had been considered a sine qua non of a normal school. This was an obvious to Mann and Barnard in New England and to Phelps in New Jersey as it was to Egerton Ryerson, founder in 1846 of a famous normal school in Toronto, whose model school excited the admiration of American visitors.[58] Yet it is a matter of historical fact that the Massachusetts normal schools carried on for some forty years after their model schools were discontinued in the 1850's largely because they were on "too slender a financial basis." The students simply practiced on one another, a system sometimes described as "playing school, with sham lessons taught to sham classes." But the normal schools neither closed nor apologized for their graduates during the time when the standard demonstration and practice lessons were suspended.

---

[57] Kinney, L. B. Certification in Education. Englewood Cliffs: Prentice-Hall, 1964, p. 54.

[58] Hodgins, J. G. Historical and Other Papers and Documents Illustrative of the Educational System of Ontario. V 1842-1861. Toronto: Cameron, 1912.

Rounds had called attention to a significant trend that was evident by 1885. She noted that "out of 233 institutions in the United States offering in some form professional training for teachers, 133 were schools established for some other purpose but having connected with them a normal school department."[59] And "of seventy-five state normal schools in 1885, forty-five did not offer advantages for practical work, while thirty had connected with them a practice department."[60] To bring the record up to date, of some 1200 institutions in the United States engaged in teacher education in 1964, approximately 205 have campus schools. A slight trend toward an increase in number in the past few years has been reported[61] but of the long-range tendency there is no question. The important point may be re-emphasized. A campus school is not considered indispensable to a teacher education institution. It seems reasonable to say that it now requires special justification. And for many colleges it is so costly as to be prohibitive.[62]

---

[59] Rounds, Iola. Training of Teachers. Education, 6: 581-590, July 1885, p. 582.

[60] Loc. cit.

[61] Blackmon, C. R. The Research Function in Selected College-Controlled Laboratory Schools. Unpublished doctoral dissertation. University of Florida, 1962.

[62] Smith, E. Brooks and Johnson, Patrick. School-College Relationships in Teacher Education. Washington: American Association for Teacher Education, 1964, p. 2.

In the light of even this brief statistical story, a historical observation is almost anti-climactic. The transformation from state normal school to state teachers college, started by Ypsilanti which granted its first B. A. in 1905, proceeded steadily in the first decade of this century, accelerated in the 1920's and was virtually completed in the 1930's. Judd saw this change, like that of many traditional colleges into teacher training institutions, as something that "did not occur as the result of any well considered plan," but rather "as a result of struggle for prestige and recognition."[63] It would seem beyond question that if some normal schools merely proceeded "with all deliberate speed" to become four-year degree-granting institutions, there were others that showed unseemly haste. But as far as laboratory schools were concerned, there was no discernible increase in their prestige or effectiveness when they became associated with colleges rather than with normal schools. In many of them some anxious attention was given to just what functions they could best perform. And in the twentieth century they were to be critically examined from without.

At the beginning of the very decade in which normal schools in large numbers took the giant stride that gave them college status, there was published a classic report calculated to give pause to those who thought that the promotion was long over-due.

---

[63] Judd, Charles H. Problems of Education in the United States. New York: McGraw-Hill, 1933, p. 47.

Laboratory Schools and Surveys of Teacher Education

In the literature of teacher education there is no study more frequently or more favorably mentioned than the one carried out under the direction of Learned and Bagley from 1914 to 1917 and sponsored by the Carnegie Foundation for the Advancement of Teaching. It was concerned only with the tax-supported normal schools of Missouri, a possible limitation not made clear by many writers who refer to it. These institutions, however, were presumably representative of those throughout the country, located in a prosperous and educationally reputable state. Governor Major was proud of "Missouri's five splendid normal schools," and apparently not disturbed by the fact that there were "'teachers' training courses in about 75 high schools."[64]

Of the generally cheerless findings, only two need be cited here. A striking example of the excessive loads carried by normal school staffs since the time when Cyrus Peirce of Lexington was constrained to ration his sleep to four hours a day was provided by Lincoln Institute. Its president was also "Professor of Psychology, Educational Psychology, Rural Pedagogy, Sociology, Latin, Modern and Medieval History, Economics, Logic, and Director of the training school."[65]

---

[64] Learned, W. S. and Bagley, W. C. The Professional Preparation of Teachers for American Public Schools. New York: Carnegie Foundation for the Advancement of Teaching, 1920, p. xv.

[65] Ibid., p. 385.

His publications are not listed. Situations only slightly less preposterous were not only common in the general run of normal schools but persisted in the succeeding teachers colleges.

The report was significantly brief on that part of normal school organization in which we are chiefly interested. "It is not too much to say, indeed, that the training department is the weakest part of the structure, and the same thing is probably true in many, if not in most of the state normal schools in this country."[66] A former student of Bagley's who remembers how careful he was about generalizing, will give considerable weight to the conjecture about normals in the mass. The practice schools of Missouri were busy, so busy that anything like imaginative work, experimentation or research had no place in them.

Some impression of the general situation in teacher education (at the time of the Learned-Bagley study) can be gained from what Kandel called "doleful figures."

"In 1919 there were 29 states which issued teaching certificates to persons who had only to pass examinations, no definite academic or professional training being prescribed."[67] "In the same year 21 states had teacher-training classes in high schools or in connection with high schools. . . most commonly such courses were a part of the regular four-year course. Occasionally an additional year was required."[68]

---

[66] Ibid., p. 192.

[67] Kandel, I. L. Twenty-five Years of American Education. New York: Macmillan, 1926, p. 242.

[68] Ibid., p. 243.

"In 1919 some 25 percent of rural teachers in Pennsylvania had had only an elementary education. And 76 percent of rural teachers in Pennsylvania had no professional preparation."[69] Normal and model schools had exercised somewhat limited magnetic powers.

Commonwealth Teacher-Training Study

It seems logical to expect that in a 654-page report on teacher education in this country there would be at least a suggestion that somewhere, somehow, the laboratory school could be involved in the improvement of teacher preparation. None will be found in the Commonwealth Study. It was, of course, of an unusual type based largely on Charters' favorite theory that the traits and duties called for by a particular job are the most reliable clues to selection and training. Even so, there are those who deplore the omission from this study of any chapter or section dealing with the place of a laboratory school in teacher education. Twenty-two solid pages are given over to the listing of literally hundreds of desirable "teacher-traits and trait-actions," surely the high-water mark in one curious realm of professional literature.[70]

The National Survey

The most ambitious survey of teacher education in the United

---

[69] Loc. cit.

[70] Charters, W. W. and Waples, D. The Commonwealth Teacher Training Study. Chicago: University of Chicago Press, 1929.

States was that of the Office of Education, reported in six volumes in 1935. It included a selected bibliography of 1928 items, reduced from an original 4000. Of those finally chosen, only fifteen are specific references to "laboratory school" and it is not being over-critical to say that singly and collectively they are disappointing.

One proposal of the report is that "where possible to utilize public affiliated schools for actual practice, it is desirable to make the campus training school largely a laboratory agency for demonstration and experimentation."[71] In the final part of the report we find a sentence whose third word should be noted carefully. "There is slight exaggeration in the statement that there are as many patterns for the use of the training school in the education of teachers as there are institutions in which teachers are prepared.[72]

An excerpt from one of the report's suggested readings about laboratory schools illustrates typical generalizations in which the literature abounds. "The training-school building should be the best modern public school building in the country. In addition, it should provide the most modern equipment and facilities which are specifically needed for the problem of training teachers."[73] One would welcome a further paragraph, beginning, "For instance."

---

[71] Office of Education. National Survey of the Education of Teachers. Bulletin, No. 10, 1933. Washington: U. S. Government Printing Office, 1933, Vol. III, p. 97.

[72] Ibid., Vol. VI, p. 123.

[73] Johnston, Laura M. The Training School Building a Factor in Teacher Training. Educational Administration and Supervision, 9: 139-145, March, 1923, p. 144.

American Council on Education Study

A Commission on Teacher Education appointed by the American Council on Education had the cooperation of twenty-four teacher education institutions in a study that it reported in 1944. The campus school received only nominal attention, a total of three pages. There was nothing more impressive to record about it than the general introduction of "new teaching aids," unspecified in nature and use, and recently completed arrangement for hot lunches at Prairie View State College in Texas.[74]

Histories of Normal Schools

A sampling of books about individual normal schools leads one to believe that they are wisely addressed to nostalgic alumni and are not a fruitful source for those who are interested in significant experimentation and research.[75] It is reasonable to assume that an author whose loyalty to the institution is manifest in every chapter would hardly overlook or play down anything redounding to the credit of his _alma mater_. If the laboratory school were remarkable in any way it would surely be given special mention. In any event, news of some startling achievement would leak out sooner or later and have a wide circulation.

---

[74] Armstrong, W. E.; Hollis, E. V.; and Davis, Helen E. _The College and Teacher Education_. Washington: American Council on Education, 1944, pp. 184-186.

[75] Boyden, _op. cit._
Graver, L. _A History of the First Pennsylvania State Normal School_. Millersville: State Teachers College, 1955.
Rogers, _op. cit._

The histories of individual normal schools are at best unpromising to the student weeking evidence of important experiments and research. The three listed in our chapter footnotes, two of which had national circulation, are valuable books but not because of significant contributions to literature about the campus school's achievements as a genuine "laboratory."

Periodical Literature on the Campus School

The problems and frustrations of the campus school; its common isolation both from the rest of the institution within which it operates and from the institution's service area; the recurring question of what functions it should try to perform; speculations about the future of campus schools and whether they really give promise of becoming centres of experimentation and research; on these and related subjects countless articles have been written over the years.[76] _In toto_ they are constructively critical and maintain that laboratory schools are needed. Some of the most severe of them have been written from within the family. It was a former president of a teachers college who hinted darkly at "dry rot" and "senility" in laboratory schools and with no suggestion that they were the rarest of phenomena.[77] Just after World War II, he was still hoping, and not too confidently, that some laboratory school would be inspired to "pioneer in the field of experimentation and research. . ."[78]

---

[76] Mead, A. R. The Functions of a Laboratory School to Its Service Area. _Educational Administration and Supervision_, 27: 305-308, April 1941.

Koopman, Margaret. A Laboratory School Evaluates Its Contributions to Teacher Education. _Educational Research Bulletin_, 24: 7-13. Columbus: Ohio State University, Jan. 19, 1944.

Bucklen, H. E. The Campus School: What Are Its Functions? _Journal of Teacher Education_, 3: 201-03, Sept. 1952.

Hughes, O. Role of Campus Lab School. _Bulletin of School of Education, Indiana University_. 35: 1-46, March 1959.

Venable, T. C. Function of the Laboratory School. _Teachers College Journal_, 32: 74-76, December 1960.

Ohles, J. F. The Laboratory School: Unresolved Problem. _Journal of Teacher Education_, 12: 390-394, Dec. 1961.

Rzepka, L. The Campus School: Its Search for Identity. _Journal of Teacher Education_, 13: 24-29, March 1962.

It would be difficult to contradict a person who insisted that the unceasing flow of articles about the campus school has been symptomatic of widespread dissatisfaction with the twentieth century record of achievement, but not particularly helpful in providing promising guidelines for the future. No eager young director of a laboratory school will find in a library of this type of literature anything that can serve as a lamp unto his feet. He will discover a virtual unanimity of opinion that student teaching should not be done on campus, divided opinion on the question of "demonstrations," and a fairly general conviction that much more must be done in unspecified areas of experimentation and research.

Professional Associations and the Campus School

At first blush it may seem reasonable to suppose that such important professional literature as the Proceedings and Meetings of the National Education Association and yearbooks like those of the Association for Student Teaching and the American Association of Colleges of Teacher Education will be fruitful sources of information about the model school and its successors. This is true if the research interest is about such questions as the proper blend of academic and methods courses, or the value of "demonstration lessons" or the time and the place for student teaching. It is not true to any rewarding extent when the concern is about significant research and experimentation and, more narrowly, about the utilization of new media. The reason for this is clear.

---

[77] Morgan, W. P. Teachers College Laboratory Schools. *Phi Delta Kappan*, 27: 167-168, February 1946, p. 168.

[78] *Loc. cit.*

During the first thirty years of the N. E. A., the model school was of common interest--but not because of its research achievements or potential. The day of respectable educational research was hardly at the dawn when the model school was a good sixty years old. It was regularly discussed and reported on at annual meetings of the Normal Schools Department of the N. E. A., from the 1870's to 1900. But by the time that professional education had even a modest commitment to real research and experimentation, the model school, by whatever name, was no longer a standard part of more than a small minority of teacher education institutions. So far as the majority were concerned, it was a costly and unnecessary feature, if not an out-and-out anachronism. If the laboratory school stood in need of examination, not to say critical evaluation, the problem could hardly be discussed intelligently, let alone be solved by any representative group of professional educators, 75 percent of whom might have no first-hand experience to draw upon and no prospect of acquiring any.

Two or three of the yearbooks should be mentioned, however. The 34th of the A. S. T. is entitled Functions of Laboratory Schools in Teacher Education. In one of the papers, Lindsey cited contributions that laboratory schools had made to developing the project methods, the unit plan and the core curriculum.[70] But he was obliged to report that "the trend today is for those schools to be used for student teaching, rather than for experimentation."[80]

McAulay gave a good account of Southern Oregon College. The laboratory school there was "used for the evaluation of teaching materials, textbooks, workbooks, types of blackboards and audio-visual aids."[81]

The general conclusion of the 1955 A. S. T. annual conference was that observation, demonstration and specialized student teaching were still high on the list of laboratory school functions but it was agreed that research and experimentation were very important, too.[82]

---

[79] Perrodin, A. F. (Ed.). Functions of Laboratory Schools in Teacher Education. 34th Yearbook, Association for Student Teaching. Lock Haven: The Association, 1955, p. 62.

[80] Loc. cit.

[81] Ibid., p. 75.

[82] Ibid., p. 150.

This particular yearbook is of special interest for its opening chapter. Written by Alex Perrodin, it deals with the development of laboratory schools in teacher education and pays special tribute to the work of Parker, Dewey, Caldwell, Merian (sic) and Zirbes.[83]

In its first yearbook, the A. A. C. T. E. came down solidly on the side of research but failed to mention the campus school as a logical place for it.[84] By 1957, however, it may have said the final important word on one issue. A discussion group reported a conclusion to which no one objected or demurred. "The campus laboratory school is no longer effective for student teaching. It should be the center for observation, demonstration, and experimentation."[85]

Individual Studies and Theses

The Williams study of "Actual and Potential Use of Laboratory Schools," is almost certain to be found in any bibliography on the campus school. It was the first reasonably thorough work of its kind. Forty-one states were represented by the 131 training institutions in the sample.

A net conclusion was that "few" laboratory schools were used for experimental purposes.[86] It was apparently beyond the scope of the thesis to give any details. "More institutions, 95.4 percent, used the laboratory school for student teaching than for any other single purpose and an almost equal percentage, 94.5, for observation."[87]

---

[83] Ibid., pp. 1-20.

[84] American Association of Colleges for Teacher Education. First Yearbook. Washington: The Association, 1948, p. 24.

[85] American Association of Colleges for Teacher Education. Teacher Education for the Future. Twelfth Yearbook. Washington: The Association, 1959, p. 88.

Barrington looked closely at 171 teachers colleges and normal schools some ten years after publication of the Williams thesis. He was concerned with the "introduction of selected educational practices into teachers colleges and their laboratory schools." By 1953 moving pictures and radio might have been widely in evidence in teacher education and more particularly in campus schools. The movies are not dealt with, but laboratory schools were found lagging in "radio workshops" to an extent that was "deplorable."[88]

All in all, "teachers colleges and their laboratory schools were discouragingly slow in adopting new educational practices, with the former group of institutions being especially guilty in this respect."[89] There would seem to have been no startling change in the general situation since Williams gave his attention to it.

---

[86] Williams, E. I. F. The Actual and Potential Use of Laboratory Schools. Teachers College, Columbia University, Contributions to Education, No. 846. New York: Bureau of Publications, Teachers College, Columbia University, 1942, p. 217.

[87] Loc. cit.

[88] Barrington, T. M. The Introduction of Selected Educational Practices Into Teachers Colleges and Their Laboratory Schools. New York: Bureau of Publications, Teachers College, Columbia University, 1953, p. 78.

[89] Ibid., p. 91.

In 1955, Bradfield surveyed twenty-four campus elementary schools in seven Southern states and Missouri. He reported that "76 percent of the schools provided for some research and 96 percent provided for at least some experimentation."[90] All twenty-four of the colleges and audio-visual materials "available for use in the campus schools."[91] Lack of detailed information and recourse to "available" impair the value of this investigation.

A 1959 study of thirty-eight laboratory schools connected with universities or teachers colleges, seven of which were visited, the others supplying answers to questionnaires, showed that for the particular sample, "Demonstration, observation and participation had occupied so much attention that the success of experimentation was jeopardized."[92] There are repeated references to the necessity for campus schools to do more experimenting and research, but one finds no specific mention of the use of new media, e.g., television, which by 1959 was plainly here to stay.

What appears to have been the most recent study involving a large number of laboratory schools, indeed a majority of them, was the one carried out by Blackmon. And it was concerned exclusively with the "research function."[93]

---

[90] Bradfield, L. E. A Survey of Twenty-four Campus Elementary Schools. Journal of Teacher Education, March 1955, 6: 118-21.

[91] Ibid., p. 120.

[92] Hughes, op. cit., p. 27.

In the preliminary part of his investigation, Blackmon was in touch with 187 laboratory schools. 140 of which were engaged in some kind of reserach. The number was then reduced to 125, in forty different states, Puerto Rico and the District of Columbia. Of the 125, twenty-three laboratory schools reported considerable research, and nine of these were finally selected for visitation. To what extent they were regionally representative of the United States is not made clear.

The study reports that in the nine laboratory schools visited, officials who were interviewed "noted that great attention was being given to new techniques, devices and materials, such as teaching machines, team teaching, closed-circuit TV, kinescopes, etc., in relation to both learning theory and the resolving of the mounting pressures of teacher education due to increasing enrollments."[94] In "at least eight of the nine laboratory schools" research was becoming increasingly important."[95] Blackmon also found evidence that "much research--particularly 'action research'--had gone unrecorded, unreported and undisseminated."[96]

In a published abstract of Blackmon's study, two conclusions and a recommendation stand out more sharply than they do in the thesis itself: "Basic research of rigorous design has been neglected in laboratory schools."[97]

---

[93] Blackmon, op. cit.

[94] Ibid., p. 118.

[95] Ibid., p. 129.

[96] Ibid., p. 131.

"Competence in research is becoming a criterion in laboratory school teacher selection."[98]

"Laboratory schools should effect research productivity as a hedge against their elimination."[99] This recommendation seems to mean that laboratory schools should concentrate more on research or run the grave risk of being abolished.

A recent thesis at Pennsylvania State University illustrates cooperation among a doctoral candidate, a demonstration teacher, a director of research and other college officials, to carry out a controlled experiment in a campus school. This particular one, at Millersville State College, tested the comparative effectiveness of closed circuit television observation and direct observation of children's art classes by elementary education majors.[100] An important conclusion of the study was that "if a college is faced with increased enrollment pressures, CCTV can provide an effective means by which multiple sections (of education majors) may simultaneously make the same observation."[101]

---

[97] Blackmon, C. R. The Research Function in College-Controlled Laboratory Schools, Dissertation Abstracts, 23: 2766, January-February, 1963. Ann Arbor: University Microfilms.

[98] *Loc. cit.*

[99] *Loc. cit.*

[100] Sykes, R. E. The Effectiveness of Closed Circuit Television Observations and of Direct Observations of Children's Art Classes for Implementing Elementary Teachers' Training in Art Education. Unpublished doctoral thesis, The Pennsylvania State University, 1964.

The leadership in CCTV given by Millersville has excited interest among the state colleges of Pennsylvania and several others of the total of fourteen now have programs for using this medium in their campus schools and methods courses.[102]

White's 1965 Study

As this chapter was being completed, a doctoral thesis on "The Status and Potential of College Controlled Laboratory Schools" came to hand.[103] Its sample was composed of fifty-four schools, more than one-quarter of the total for the nation.

Some eighty percent of the directors are firm in their belief that laboratory schools have more freedom than public schools to engage in experimentation and research.[104] But only about one-third declared that experimentation and research were the major functions of their own schools.[105] Some twenty percent reported no present or recent research.

---

[101] Ibid., p. 124.

[102] Vide, e.g., Bumpass, D. E. TV Helps to Teach Teaching. Pennsylvania School Journal, 112: 318-319, March 1964.

[103] White, Norman D. Status and Potential of College Controlled Laboratory Schools. Unpublished doctoral thesis, George Peabody College for Teachers, 1964.

[104] Ibid., pp. 77-78.

[105] Ibid., pp. 143-144.

White could only conclude that "experimentation and research are not among the principal functions of the college-controlled laboratory schools."[106] He ventured no prediction and saw no trend that justified a stronger statement than "laboratory schools are facing an uncertain future."[107]

Campus Schools at the Crossroads

Limited Use Made of Movies and Radio

That teacher education institutions and departments have made only limited use of movies and radio is a fact that has often been documented and regretted. Forty years ago Ellis and Thornborough could report only nineteen normal schools, colleges and universities that had given courses in visual instruction. They observed severely that it was "exceedingly short-sighted for a normal school to send its students forth in this day with no familiarity with the use of motion pictures or in the training in methods for using them."[108] It was not uncommon for a public school district served by a normal school or teachers college to be far ahead of the professional institution in utilizing modern instructional media.[109] In short, Ellis and Thornborough could detect no evidence of leadership being given in this whole field either by cooperative endeavor in teacher education or by particular campus schools.

---

[106] Ibid., p. 143.

[107] Ibid., p. 138.

[108] Ellis, D. C. and Thornborough, Laura, Motion Pictures and Education. New York: T. Y. Crowell Co., 1923, p. 107.

[109] Loc. cit.

School Life, which is not given to sensational criticism of the profession, had no choice of headlines when it reported a 1950 conference in Washington of fifteen specialists in teacher education and audio-visual education. "Teachers Not Prepared to Use Audio-Visual Materials" was borne out by the liberal estimate that not more than twenty-five percent of the nation's prospective teachers were receiving any instruction in the use of audio-visual materials.[110]

There was no suggestion that the possible one-quarter of the teachers in training receiving suitable instruction were in colleges with campus schools. Teacher education institutions were enjoined to make sure that all of their graduates were prepared to use special media.

Significant Silence on Campus Schools

To one who has spent years in extensive, and several months in intensive reading about the professional side of teacher education, it is a highly significant fact that such standard sources as the Encyclopedia of Educational Research, Monroe's Cyclopedia of Education and Rivlin's Modern Encyclopedia of Education have so little to say about the campus school. Except for its historical evolution and for the undoubted value of its model lessons and practice teaching when American education was the merest professional infant, it seems to be assumed that it is of small interest either to scholars or to schoolmen in general who are not directly associated with it. A few institutions like Oswego and Chicago are forever connected with famous names, but they stand out as what Chesterton called "frantic exceptions" to an unexciting rule.

---

[110] School Life, 32: 53, Jan. 1950. Teachers Not Prepared to Use Audio-Visual Aids. Unsigned article reporting a conference at U. S. Office of Education.

It may be even more significant that critics of American teacher education, whether of moderate or caustic tone, are as likely as not to pass over the campus school entirely. Conant gave it a paragraph of five factual sentences in a recent book.[111] The Education of American Teachers attracted nation-wide attention and touched off many controversies. None of them was about the campus school.

Koerner, alert to every weakness in teacher education but capable of praise on those rare occasions when he thinks it may just possibly be deserved, is completely silent on the subject. If he saw a campus school at any of the sixty-three accredited institutions that he visited, it apparently did not impress him one way or the other.[112]

When Siepmann recorded the progress of the first ten years of educational television, he made no reference to laboratory schools.[113]

---

[111] Conant, J. B. The Education of American Teachers. New York: McGraw-Hill, 1963, pp. 259-260.

[112] Koerner, J. D. The Miseducation of American Teachers. Boston: Houghton Mifflin, 1963.

Elliott's Film and Education made a convincing case for the classroom use of films and summarized research on the subject, but did not mention campus schools in connection with either the making or the utilization of films.[114]

Bruner in a provocative chapter on "Aids to Teaching," discusses possible uses and misuses of a variety of "model devices" but does not so much as hint at any campus school responsibility.[115] A recognized center of experimentation would scarcely be overlooked.

The October 16, 1950, issue of Life at least touched upon practically every aspect and institution of American education. The noticeable omission was the campus school, although there was a special feature on teachers' colleges.[116]

The Extreme Recommendation

Perhaps the sharpest criticism on record of a group of campus schools is that of Brickell. He concluded that those at New York's eleven state university colleges were not experimental and were subject to "powerful restraints that made bold experimentation impossible."[117] They seemed to be wedded to the theory that "the best known methods" should be demonstrated and that untested methods should be left severely alone.[118] Brickell was satisfied that "in the eyes of the public schools, the campus schools are abnormal, artificial and unreal."[119] He granted that they are conveniently located and do provide "readily accessible artificiality."[120] He made one recommendation about them. They should be closed.[121]

---

[113] Siepmann, C. A. T. V. and Our School Crisis. New York: Dodd, Mead, 1958.

[114] Elliott, G. M. Film and Education. New York: Philosophical Library, 1948.

[115] Bruner, J. S. Aids to Teaching. The Process of Education. Cambridge: Harvard University Press, 1961, 81-92.

[116] Sperry, J. W. Who Teaches the Teachers? Life, 29: 147-154, Oct. 16, 1950.

A Ripple or a Wave?

If the laboratory school of the 1960's can be described by one friendly writer as "an unresolved problem,"[122] and by another as "searching for identity,"[123] there are at least some signs, not limited to a particular region, that new ground is actually being broken, and on a growing scale. The best example is probably provided by closed circuit television, first used in a campus school at San Diego State

---

[117] Brickell, H. M. Organizing New York State for Educational Change. Albany: State Education Department, 1961, p. 51.

[118] *Loc. cit.*

[119] *Loc. cit.*

[120] *Ibid.*, p. 95.

[121] *Ibid.*, p. 94.

[122] Ohles, *op. cit.*

[123] Rzepka, *loc. cit.*

College in the 1958-1959 school year.[124] If it is not in universal use, it is obviously becoming common. Its increasing popularity is enough to raise questions about the notorious fifty-to-one-hundred-year "lag" in the general adoption of sound educational practices that Mort and others were thought to have established as an axiom. Now that the whole matter of "innovation" is coming under concentrated study,[125] the rate of healthy change in laboratory as in other schools may improve in this decade. Their directors and other responsible administrators have a clear minimum obligation, not to accept the lag theory but rather to show that it is not an immutable law in their own households.

Many individual campus schools are known to be taking stock and planning to do more than five lip-service to experimentation and research. The one at the University of California, Los Angeles, has gone on record with a strong statement that leaves no doubt about the direction it will take from now on. It "de-emphasized" practice teaching in 1955, virtually eliminated it by 1960 and then decided that "the University Elementary School as a laboratory school in the Department of Education will be experimentation and research into basic and applied knowledge in the fields of education."[126] Any observation will be of educational processes and not of made-to-order demonstrations."[127] And any "training experiences will necessarily be limited to a few selected students, these to come from such fields as administration, counseling, curriculum study, research and teaching."[128]

---

[124] Nardelli, R. R. CCTV: Campus Lab for Teacher Education. Educational Screen and Audiovisual Guide, 39: 72-74, February 1960.

[125] Miles, M. B. Innovation in Education. New York: Bureau of Publications, Teachers College, Columbia University, 1964.

Similar stirrings are in evidence in several laboratory schools throughout the nation. It should not be long until we know whether to call them a ripple or a wave.

---

[126] University of California, Los Angeles. The Functions and Administrative Structure of the University Elementary School as a Laboratory School of the Department of Education in the School of Education. Mimeographed report by a departmental committee, Lorraine M. Sherer, chairman, 1961, p. 92.

[127] *Ibid.*, p. 95.

[128] *Loc. cit.*

Supporting Reading

Adams, W. H. Pushbutton Observation for Student Teaching. *Texas Outlook*, Jan. 1950, 43: 26-27.

American Council on Education. *The Improvement of Teacher Education*. Washington: The Council, 1946.

American Council on Education. *Major Issues in Teacher Education.* Washington: The Council, 1938.

Barnard, H. *Normal Schools*. Hartford: Case, Tiffany and Co., 1851.

Bolton, F. E. Original Investigation in Normal Schools. *Education*, 20: 548-56, 601-12, May and June, 1900.

Brubacher, J. S. Teacher Education-Development. In C. W. Harris (Ed.). *Encyclopedia of Educational Research*. New York: Macmillan, 1960, 1452-1454.

Cremin, L. A. *The Transformation of the School*. New York: Knopf, 1961.

De Graff, E. V., and Smith, Margaret K. *Development Lessons for Teachers*. New York: Lovell, 1884.

Elementary School Teacher, June 1903, No. 3.

Elsbree, W. S. *The American Teacher*. New York: American Book Co., 1939.

Gaskill, A. R. and Carlson, A. A. Is the Campus Laboratory School Obsolescent? *School and Society*, 86: 106-07, March 1, 1958.

Giffin, W. M. *School Days in the Fifties* to which is appended an Autobiographical Sketch of Francis Wayland Parker, Chicago: Flanagan, 1906.

Glennon, V. J. *The Road Ahead in Teacher Education*. The 1957 J. Richard Street Lecture. Syracuse: Syracuse University Press, 1957.

Good, H. G. *A History of Western Education*. New York: Macmillan, 1960, pp. 445-450.

Holbrook, A. The Normal. New York: Barnes and Burr, 1860.

Holland, E. O. The Pennsylvania State Normal Schools and Public School System. Teachers College Columbia University, Contributions to Education No. 55. New York: Teachers College Columbia University, 1912.

Hunsucker, Florise. The Council on Professional Laboratory Experiences. Teachers College Journal, 28: 74-79, March 1957.

Judd, C. H. The Influence of Scientific Studies in Education on Teacher Training Institutions. Peabody Journal of Education, 11: 291-300, May 1925.

Judd, C. H. and Parker, S. C. Problems Involved in Standardizing State Normal Schools. Bureau of Education Bulletin, 1916, No. 12, Washington, D. C., 1916.

McCarrel, F. The Development of the Training School. Abstract of contributions to Education, No. 126, George Peabody College for Teachers. Nashville, Tenn., 1934.

Meader, J. L. Normal School Education in Connecticut. Teachers College, Columbia University Contributions to Education, No. 307. New York: Bureau of Publication, Teachers College, Columbia University, 1928.

Meriam, J. L. Normal School Education and Efficiency in Teaching. Teachers College, Columbia University, Contributions to Education, No. 1. New York: Teachers College, Columbia University, 1906.

Meyer, A. E. An Educational History of the American People. New York: McGraw-Hill, 1957, pp. 204-207, 227-232, 385-389.

National Commission on Teacher Education and Professional Standards. Changes in Teacher Education. Official Report of the Columbus Conference. Washington: National Education Association, 1962.

Olson, W. C. Role of the Laboratory School in Graduate Education. In Fiftieth Yearbook of the National Society for the Study of Education. Part I. Chicago: University of Chicago Press, 1951.

Painter, W. I. New Media in Teacher Education. Phi Delta Kappan, 43: 389-390, June 1962.

Rugg, H. The Teacher of Teachers. New York. Harper and Brothers, 1952.

Sarason, S. B.; Davidson, K. S.; and Blatt, B. The Preparation of Teachers, An Unstudied Problem in Education. New York: John Wiley and Sons, 1962.

Seerley, H. H. Problems Facing the Normal School at the Opening of the Twentieth Century. Education, 21: 287-290, Jan. 1901.

Strayer, G. D. Training of Teachers in Paul Monroe (Ed.). Cyclopedia of Education. New York: Macmillan, 5: 515-520, 1913.

Suhrie, A. L. Standard Provisions for Equipping and Staffing of the Laboratory School. Educational Administration and Supervision, 16: 345-351, May 1930.

Taylor, W. S. The Development of the Professional Education of Teachers in Pennsylvania. Philadelphia: Lippincott, 1924.

Teachers College Record, 37, February 1936, devoted to Lincoln School.

Walk, G. E. Practice Teaching and Observation in Normal Schools. Education, 38: 69-85, Oct. 1917.

Wirth, A. G. John Dewey's Design for American Education: An Analysis of Aspects of His Work at the University of Chicago, 1894-1904, History of Education Quarterly, 4: 83-105, June 1964.

CHAPTER II

THE STATUS AND POTENTIAL OF A REPRESENTATIVE SAMPLE OF COLLEGE-CONTROLLED LABORATORY SCHOOLS

Norman Dean White
Assistant Superintendent
Kankakee Public Schools
Kankakee, Illinois

PRECEDING PAGE BLANK-NOT FILMED

Approximately two years ago the writer, who was then a doctoral student, had the temerity to state, in the presence of his major professor, that college-controlled laboratory schools were anachronisms. The writer then further generalized that to call these institutions either laboratory or demonstration schools was misleading because they were not involved either in research or in exhibition. When challenged to support these statements with evidence, the author found that there were no recent studies concerning the status of college-controlled laboratory schools.

In the last decade many authorities in the field of education had expressed questions about the proper role of college-controlled laboratory schools. However, no one had recently conducted a nationwide survey to determine the status or the potential of these schools. The writer was thus happily able to combine two of the basic elements of a doctoral student's research needs; an area of strong personal interest and an unfulfilled research need. The findings reported in this chapter are derived from the resulting research project. The study was completed at George Peabody College for Teachers in 1964.[1]

The purpose of the study was to determine the present functions and the potential of college-controlled laboratory schools in the United

---

[1] Norman Dean White. The Status and Potential of College Controlled Laboratory Schools. Unpublished doctoral dissertation, George Peabody College for Teachers, 1964.

States. A college-controlled laboratory school was defined as a school largely or entirely under the control of a college or university and located on or near the college campus.

Procedures for Gathering and Analyzing Data

The survey method was employed to gather the data. A 25 percent stratified random sample of the member institutions of the American Association of Colleges for Teacher Education was identified. This sample consisted of 159 universities and colleges which were randomly selected from the four geographic quadrants of the United States according to three institutional classifications; private institutions, public colleges, and public universities.

Preliminary questionnaires were sent to an official AACTE representative at each of the 159 institutions. These individuals were requested to indicate whether or not a college-controlled laboratory school existed at their institution and to identify the director of any such school. Each representative was also asked to name the director of the division of teacher education at his institution. One hundred fifty-eight completed preliminary questionnaires were returned.

Questionnaires were sent to the sixty-two directors of college-controlled laboratory schools identified in the preliminary survey. (The reader will note that about 40 percent of the higher education institutions in the AACTE maintain a laboratory or college-controlled school.) Fifty-four directors returned completed questionnaires.

Certain quantitative data related to the present and potential functions of the laboratory schools and the responses of the directors of these schools to various ideas pertaining to teacher education were obtained from the completed questionnaires.

The directors of the divisions of teacher education at the ninety-six institutions in the sample which did not maintain college-controlled laboratory schools also received questionnaires. Seventy-one of the division directors returned completed questionnaires. The responses of the directors to the various ideas pertaining to teacher education were obtained from these completed questionnaires. Table 1 shows the incidence of response to the various questionnaires.

The ideas and opinions of certain additional interested individuals concerning the status and potential of college-controlled laboratory schools were obtained from interviews and correspondence.

The quantitative data related to the present functions of college-controlled laboratory schools were tabulated in terms of numerical totals and percentages. The theoretical portions of the data were analyzed according to general categories and no attempt was made to express all of the results in arithmetic terms.

The study was undertaken in order to provide answers to certain questions. These questions included:

1. What are the principal contemporary functions of the college-controlled laboratory schools?
2. What are the opinions of present directors of college-controlled

TABLE 1

Incidence of Response to Various Questionnaires from Member Institutions of the American Association of Colleges for Teacher Education

Questionnaire Recipients	Questionnaires Dispatched	Usable Questionnaires Returned Number	Usable Questionnaires Returned Percent
Representatives of a Randomly Selected Sample of 25% of the Membership of the American Association of Colleges for Teacher Education	159	158	99.37
Directors of College-Controlled Laboratory Schools	62	54	87.10
Directors of Teacher Education at Institutions which do not Maintain College-Controlled Laboratory Schools	96	71	73.96

laboratory schools and directors of divisions of teacher education concerning the present status of these schools in relation to certain ideas pertaining to teacher education?

3. What are the predictions of these persons concerning the future functions of the college-controlled laboratory schools?
4. What implications are apparent concerning the future functions of college-controlled laboratory schools in the United States?

Contemporary Functions

The major findings related to the question of the principal contemporary functions of college-controlled laboratory schools in the United States are as follows:

1. The most commonly cited objective of the college-controlled laboratory school is to provide a satisfactory education for the pupils enrolled. Two-thirds of the laboratory school directors in the survey group stated that this was the principal objective of their school.
2. When providing for the satisfactory education of the pupils enrolled is eliminated from consideration, the most common function of the college-controlled laboratory school is providing facilities for pre-student teaching observation. Approximately one-half of the laboratory school directors in the survey group stated that this was the main function of their school.
3. Student teaching is not the principal function of the majority of the college-controlled laboratory schools. Only slightly more

than one-third of the directors of college-controlled laboratory schools rated "providing for effective student teaching experiences" as one of the principal functions of their school.

4. Experimentation and research are not among the principal functions of the majority of the college-controlled laboratory schools. Only about one-third of the directors of college-controlled laboratory schools stated that experimentation and research was a major function of their school. Most of the reported research projects were similar to the kinds of investigation normally carried on in many public school systems. Approximately 20 percent of the respondents reported that their laboratory schools had no present or recent research projects.

Table 2 shows the findings related to the principal contemporary functions of college-controlled laboratory schools in the United States.

Teacher Education Opinions

The major findings related to the opinions of the members of the total survey group concerning certain ideas pertaining to teacher education and laboratory schools are as follows:

1. The need for conducting a part of a teacher education program in a carefully controlled laboratory school atmosphere is not accepted by many directors of teacher education. Only about one-half of the respondents accepted this idea. The high cost of operating college-controlled laboratory schools and the unrealistic teaching situations believed to exist in such schools were

TABLE 2

Basic Functions of Fifty-four College-controlled Laboratory Schools

Basic Functions	Number of Schools	Percent
Provision for Quality Education for the Pupils Enrolled	36	66.67
Provision for Meaningful Observation Situations	26	48.15
Provision for Effective Student Teaching Situations	20	37.04
Provision for Educational Research and Experimentation	18	33.33
Others	8	14.81
Not Reporting	4	7.41

cited as reasons for rejecting the idea.

2. There is general accord with the idea that institutions of teacher education should engage in continuous educational experimentation and research. Approximately four-fifths of the respondents agreed with this idea. The rate of agreement was somewhat higher among the directors of college-controlled laboratory schools than it was among directors of teacher education. However, about two-thirds of the respondents stated that their institutions were doing very little experimentation or research.

Possible Future Functions

The major findings related to the predictions of respondents concerning possible future functions of college-controlled laboratory schools are as follows:

1. The research, experimentation, and innovation functions of the college-controlled laboratory schools are expected to increase in both number and scope. The respondents were largely agreed that, if the college-controlled laboratory schools had a unique function to fulfill, it was in this area.
2. The college-controlled laboratory schools are expected to make increasing use of remote observation techniques and devices, such as closed circuit television systems, in order to provide prospective teachers and other interested individuals with additional opportunities for observation. However, the author's

survey did not request and, in general, the respondents did not supply information concerning the specific nature of these arrangements.

3. There is little expectation that many new college-controlled laboratory schools will be contructed. The number of respondents who foresaw the construction of new schools in this mold was smaller than the number of respondents who favored the construction of jointly operated laboratory schools under the shared control of colleges and local public school systems.

Conclusions and Recommendations

In some respects the conclusions and recommendations which follow may appear to the reader as obvious inferences. They are not necessarily new insights. However, these conclusions and recommendations do represent the areas of greatest need, as revealed by the study.

The conclusions and recommendations drawn by the author from the data are as follows:

1. Interested students who have not yet entered a teacher education program should be provided opportunities in their college programs to explore education as a career through appropriate direct experiences. The close physical and administrative relationship of the colleges and the college-controlled laboratory schools may facilitate the provision of such experiences. Where

satisfactory laboratory schools are available they should be utilized to provide a part of these experiences. Although providing for exploratory experiences in teacher education would appear to be a natural function of the college-controlled laboratory school, it is not a common practice at the present time.

2. Institutions of teacher education should carry on continuous research and experimentation in those facets of educational service for which they prepare practitioners. Those institutions which maintain college-controlled laboratory schools should utilize the unique research advantages of these schools. Joint research projects involving members of the divisions of teacher education and members of the teaching staffs of the laboratory schools should be encouraged.
3. The teacher education institutions which operate college-controlled laboratory schools should carefully evaluate the present and potential functions of these schools. Those laboratory schools which do not perform a useful function in teacher education should be modified or closed.
4. Jointly operated laboratory schools, cooperatively controlled by colleges and local public school systems, may have particular utility as centers for research, demonstration, and in-service education. The value of such schools should be further tested, either as adjuncts to or as substitutes for college-controlled laboratory schools.

This chapter cannot be completed without some reference to the findings of Lathrop and Beal, as reported in Chapter III of this volume. It is reassuring for the writer to note that, although the study on which their findings are based was carried on entirely independently, Lathrop and Beal's findings are in essential agreement with those of this chapter concerning the status and probable potential of college-controlled laboratory schools.

In their study of a selected sample Lathrop and Beal found the education of the pupils enrolled to be an important part, if not the major portion, of the laboratory schools' present function. The writer's study also indicated this trend and found the same paramount commitment to this responsibility on the part of the teaching faculties. It was the author's conclusion that the laboratory school teachers' interest in research and demonstration is in inverse ratio to the length of their service in the laboratory schools. Therefore, some method of providing for systematic teacher rotation, after some definite amount of service in a laboratory school, could possibly facilitate increased experimentation and demonstration.

Lathrop and Beal are perhaps more optimistic than this writer in their expectations for the use of new observation media as a part of the pre-service education of teachers. The author found little concrete evidence in this trend, only a strong belief that this was a future possibility. In the opinion of the writer, the laboratory schools may have to choose between the research and demonstration functions.

Properly controlled research is not usually compatible with the constant insertion of variables which is a part of an exhibition situation.

The results of the writer's study supported the findings of Lathrop and Beal on the matter of in-service education. This was an area where most of the survey group expressed strong commitment to the idea but gave much less evidence of ability or activity designed to fulfill this commitment. The writer sees little hope for improvement in the in-service efforts of college-controlled laboratory schools.

The authors of Chapter III reported that they found little truly educational research being carried on in the laboratory school which they studied. They also reported that most of the current research activity was relatively unoriginal and designed mainly to satisfy the personal interests of the faculty members involved. This writer concurs with those findings. Like Lathrop and Beal the writer did not discover any great interest in laboratory school research on the part of either the laboratory school staffs or the faculties of the education divisions of the parent institutions of higher education.

The author's study indicated the same deadening lack of concern for the future of laboratory schools that was reported in Chapter III. Most of these schools have no strong connections with their parent institution or with the schools in the surrounding area. They bear a strong resemblance to the isolated examples of primitive societies living on in the midst of a rapidly changing world. Their future is precarious, if they do not make changes to meet the changing needs of the times. College-controlled laboratory schools can serve a unique and useful function if they will adjust their programs, their staffs, their pupil populations, and their relationships to other segments of the educational enterprise and meet the needs and demands of today. However, this writer cannot be optimistic concerning the likelihood of such changes.

CHAPTER III

CURRENT STATUS
OF SELECTED COLLEGE-RELATED SCHOOLS

Robert L. Lathrop
Associate Professor of Psychology and Education
The Pennsylvania State University

and

Dallas K. Beal
Director of Education
State University College
Fredonia, New York

PRECEDING PAGE BLANK- NOT FILMED

H. G. Wells in his Outline of History observes that the floor of the ocean is covered with the skeletons of animals that were unable to foresee change or adjust themselves to a changing environment. According to many observers of the American educational scene, the college-related school is in the process of joining these relics, washed into the backwaters, out of the main stream of current educational practice.

The fact that the campus-related school has not kept pace with educational thinking in America has been well documented by Hutton (Chapter I) and by White.[1] With each passing year still further evidence accumulates that the campus school is being pushed toward the fringe of the activities of schools of education. In the past ten years alone, over twenty campus-related schools have been completely closed and another dozen schools have drastically cut back their programs.[2] As pressures on collegiate budgets increase in the years ahead, administrators in still other institutions are likely to raise questions about the contribution that their campus school operation makes to their program of teacher preparation and educational research. The campus-related school is quite obviously at a turning point in its development. According to most observers it must, either assume new functions and responsibilities or face the very real prospect of disappearing from the educational scene.

---

[1] White, Norman D. The Status and Potential of College Controlled Laboratory Schools. Unpublished doctoral thesis, George Peabody College for Teachers, 1964.

[2] Kelly, E. H. College-controlled Laboratory Schools in the United States--1964. Washington: American Association of Colleges for Teacher Education, 1964.

Selection of Schools to be Visited

It was because the campus school is at this very crucial point in its history that a decision was made to test the tenor of current thinking and practice within a carefully selected sample of campus-related schools. Two-man observation teams were sent to a sample of fifteen collegiate institutions to discuss with college faculty members, laboratory school teachers, campus school administrators, and students the thinking being given to the present and future role of the campus school in American education. In these visits the research teams were advised to pay particular attention to the organization of the laboratory school, its relationship to the collegiate faculty, its attempts at innovation with new media, and its involvement in research and experimentation.

In the selection of schools to be visited a number of criteria were employed. Both the size and type of the affiliated collegiate institution were considered, with visits made to large multi-purpose universities as well as relatively small state colleges. The length of involvement in campus school activities was considered, with institutions such as

Chicago and Oswego included in the selection. Some institutions were visited because of their devotion to a particular point of view regarding campus school instruction and others were visited because of their attempts to discard a tradition of constricted thinking about their role and purpose. Certain schools were visited because of unusual working relationships with their communities, while others were visited because of the breadth of their program, serving children from kindergarten through grade twelve. Within all of the above specifications, an attempt also was made to sample schools geographically so that institutions were visited in several regions of the country.

It should be clearly stated that the sample was not selected to be statistically representative of all the laboratory schools in the United States. A status survey recently conducted by White[3] has served this purpose and the investigators were not concerned with replicating White's investigation. Rather, the intent was to select institutions which, for one or more of the above reasons, gave some promise of providing information or a point of view that would be helpful in predicting the future directions of the campus school.[4]

In all cases the visiting team members were impressed with the frankness and cooperation of the faculty and administrators visited.

---

[3] White, op. cit.

[4] The names of the campus schools visited appear in the appendix to this chapter.

These dedicated people were, by and large, very much aware of the pressures which are being brought to bear on campus-related schools and were in most cases seeking to clarify their role within their own institutional and community setting. The visiting research teams also were without exception impressed with the sincerity and thoughtfulness of the campus school administrators with whom they visited, even though in some instances they differed greatly on particular points of emphasis.

Finally, it should be made clear that it was not the intent of this study to identify or pass judgment on the problems of any particular institution; to do so would be presumptuous. Rather, it is intended, in describing observations, to identify problems and characteristics which, in our opinion, either operate for or against the laboratory school preserving itself as a vital and important educational institution.

Present Day Functions of College-related Schools

Although emphasis on various functions served by the college-related school differs somewhat from institution to institution, it is possible to provide common categories for purposes of discussion. The four functions which seemed to be most characteristic of college-related schools, both historically and as found by the visiting teams, were: the education of a resident pupil population; pre-service education of teacher candidates through observation and student teaching;

in-service education of practicing teachers, including program development and dissemination of teaching materials; and lastly, innovation, research, and experimentation.

The remainder of this chapter will examine each of the above functions and describe the relative emphasis to each as found in the sample of schools visited in this project.

Education of Pupil Population

With only one exception all of the campus schools visited gave high priority to the education of their laboratory school clientele. In no case, in which a continuous student body was enrolled, did the visiting team find this function disregarded. There was, of course, a relatively less protective attitude taken for this function in some institutions; however, even in the most experimental schools, such functions as innovation, in-service education and curriculum development were moderated by concerns for the education of the student population. While several schools recognized that they must serve broader functions than the typical public school, in no case was the responsibility to provide an acceptable educational program discounted.

The commitment to provide a sound educational program (as one might expect) was given highest priority by those persons charged directly with teaching responsibilities. In a great many instances laboratory school teachers saw no other professional obligation than to do an outstanding job of teaching. Such additional responsibilities as experimentation, innovation, and research were largely felt by some to be beyond their interests or purview.

In only one university did the team discover complete absence of a continuous student population. In this institution children were brought to an experimental learning center as needed to serve as subjects for research projects undertaken by the faculty of the university. Except for this one exception, however, all the schools visited were quite obviously very much impressed with their responsibilities to pupils.

The Pre-service Education of Teachers.

Hutton, in Chapter I, traces the history of the college-related school and describes in detail the opportunities such schools have provided teacher candidates to see, and to participate in the teaching-learning process. Indeed, in the early history of many institutions, every student who was graduated either had an observation or student teaching experience in the campus school.

As has been true nationally,[5] the schools visited in this study have without exception been forced to limit, and in some cases eliminate entirely, student teaching as an activity in their campus school. Campus schools have not expanded sufficiently over the years to even approach accommodating all the students who need student teaching experience as a part of their teacher education program.

---

[5] White, *op. cit.*

The campus schools have not, however, entirely relinquished their responsibilities for the pre-service education of teachers. Several of the campus schools visited did provide observation rooms connected to classrooms designed to enable students to observe "live" instruction. Even these facilities, however, limit the number of students who can have live contact with the classroom and are being threatened by increased enrollments. As an alternative to live viewing a number of institutions are exploring new means by which students may observe remotely, educational practices that they would previously have seen first-hand. In at least two instances rather extensive use of closed-circuit television was providing large numbers of pre-service teachers with a means of observing demonstration teaching. Several other schools also had plans well underway to utilize the campus-related school as an observation-demonstration center for pre-service teacher education.

The relative efficiency of "live" viewing versus closed-circuit television viewing is quite obviously a matter beyond the scope of this inquiry. It was, however, the impression of the observers that in those institutions where television was being utilized, greater care was being taken to incorporate the observational experience into the teacher preparation program than where the student simply observed a class, "live."

In the opinion of the writers, college-related schools can and do provide a means of pre-service experience for teacher candidates.

The quality and value of such experience, however, is a matter which appears to be highly variable and largely dependent upon the degree of involvement of the collegiate faculty with the laboratory school. In those institutions where there has been a dissociation of interests and efforts between college and laboratory school personnel, the contribution of the campus school to pre-service education has been minimal and cannot easily be used as a justification for maintaining such facilities. In those locations where avenues of communication between academic and laboratory personnel have been kept alive, the campus school does serve as one means of bringing teacher candidates into contact with educational practice. Unfortunately, maintaining communication between colleges and laboratory personnel has not proved an easy problem to resolve and, apparently, many institutions have not developed effective means for insuring that college and laboratory facilities do not go their separate ways, as they seem prone to do.

In-service Education

The in-service education efforts reported by the campus schools observed in this study can be grouped into two main categories: workshops for teachers, which includes the demonstration of a particular approach to teaching; and development and dissemination of new curriculum materials.

With a few notable exceptions, such as the demonstration school teacher who would allow no visitors in his classroom, the schools included in the study seemed willing to assume responsibilities to the teaching profession at large. In some cases their efforts were manifested through the development of instructional materials which could ultimately be used in public schools. In othercases laboratory schools reported providing staff time for direct contact with public school teachers either through demonstration or consultations.

As an overall judgment it must be said that in most instances in-service education efforts of campus schools have been only marginally developed. This, in spite of the fact that the campus schools do generally consider in-service education as important. In the few instances in which active in-service education programs were found, the impetus typically came from individuals outsidethe laboratory school and often from individuals outside the college of education. In several instances the principals of the schools candidly acknowledged that when laboratory school faculty were employed they were told that their primary responsibility was to the student population and that they would not be responsible for the development of new curriculum materials. It was not difficult, given this context, to recognize one of the basic deterrents to curriculum innovation. Faculty members who were not encouraged to develop new curriculum materials and at the same time were scheduled for tull-time instructional responsibilities within the school could not be expected to provide innovative in-service leadership to the profession.

In fairness, however, it should be noted that the visiting team did not find any campus school with sufficient facilities to release large amounts of faculty time to develop and publish materials on a continuing basis. Several of the schools visited were duplicating some materials that could be distributed to area public schools and placed in the hands of teachers, and a few of the schools provided released time for staff members to teach courses to area teachers, particularly in science, mathematics, and English. Typically, however, such efforts were modest. The campus school has traditionally been regarded by its collegiate affiliate as parochial in its professional responsibility and has never been equipped to mount extensive in-service education programs.

In the area of curriculum development the University of Illinois was by far the most active institution visited. At the time of the visit, well over a million dollars in curriculum development funds had been made available to the University for projects to be carried on principally in the University High School. In no other institution visited was there this degree of involvement of the campus school in the development and dissemination of new instructional materials.

With one possible exception, the campus schools visited had not begun to develop the potential of educational television for the in-service education of teachers in the field. In general, campus schools were poorly supplied with television equipment and were far behind in the use made of this medium in many public schools. The picture is, however, not totally bleak with such schools as San Diego State, the University of Massachusetts, Millersville State College (Pa.), and others moving in the direction of increased use of television. Perhaps a study done on this topic five years from now could report a much wider use of television in campus schools both for the purpose of in-service education of teachers and as an enriching dimension of undergraduate education.

Apart from rather pedestrian use of instructional media in the campus school, the observers were struck by the almost complete absence of innovative ideas about the use of new media in teacher education. Although campus schools have many unique opportunities to control variables which perplex researchers in public schools, little, if any, evidence of media research being done in the laboratory schools was found. By and large, most campus school staffs had not developed the use of new media to any greater degree than could be found in the typical public school.

Innovation, Research and Experimentation

Because of the ambiguity in which the word research is used in educational literature, it may be helpful to provide a brief word of explanation about its use in this chapter. If one were to adopt a narrow definition of research and experimentation, including only careful experimental control and evaluation, one would have to acknowledge that essentially no research was being carried on in the laboratory schools visited.

Employing a somewhat broader interpretation of research, simply describing it as exploratory in nature with modest experimental controls and plans for evaluation, a small number of projects could be identified in the schools visited. Typically, such research projects were being conducted by faculty members from the affiliated college or university, with the campus-related school merely serving as a convenient source of subjects. Very often the projects being conducted were entirely tangential to the instructional program of the school. In at least one institution, the most frequent users of school populations for research were not members of the college of education but were faculty and students in the department of psychology or in the college of medicine. It was, in fact, rather unsettling to the observers to find that among the institutions visited very little use was being made of the research potential of campus-related schools by faculty members in the affiliated departments of education and educational psychology.

In the few instances in which laboratory school personnel were engaged in some exploratory activity, the investigation ordinarily involved some change in teaching method, such as team teaching or non-graded classes and was carried on principally to satisfy the personal interest of the investigator. Rarely were such inquiries designed to allow generalizations beyond the particular group of subjects involved.

In fairness it should be pointed out that although research has often been used as an argument for maintaining campus schools, such facilities have rarely been staffed or funded to carry on programs. It now appears that directors of campus schools recognize the potency of this justification for their future existence and are beginning to explore possible avenues for initiating research. Since most campus schools are not staffed or supported to carry on their own research they are thereby left in a dilemma; either they must actively court college faculty members, encouraging them to use the school as a laboratory, or they must build into their own faculties the capacity to carry on research.

The unfortunate reality in the institutions visited, however, was that the faculty members in the departments of education were not particularly interested in doing research in their laboratory schools, and as a result, even in those institutions where the laboratory school was receptive to overtures by faculty members only the most tenuous ties had been established. At least two of the institutions visited are working hard to establish better lines for the promotion of research in the laboratory school, although the ultimate outcome of such efforts in the opinion of the visitors is clearly in doubt.

Factors Imposing Restrictions on the Campus School

Money. For many years the campus-related school drifted, relatively unnoticed, out of the main stream of public education. Little question was raised about its purposes and little attention was given to its justification. So it probably would have remained, had the colleges and universities supporting them not been forced by a variety of circumstances to examine all phases of their activities. The campus-related school is not an inexpensive operation. For many of the institutions visited, between a quarter and a half million dollars of the college's budget is being absorbed by this facility each year. With such a large expenditure, for what many faculty members view as non-essential activity, the closing of the college-related school has been regarded by many as a possible budgetary windfall.

Faculty disinterest. To compound matters for the campus school, many colleges are now staffed with a new generation of faculty members, persons who have had little or no personal contact with a laboratory school. Having no traditional ties with the campus-related school these faculty members understandably tend to be rather indifferent to the possible demise of the campus school. The campus school, therefore, is left in the precarious position of having few active supporters and a great many critics.

Community relationships. Because a campus school is a school, and therefore responsible for a population of learners, it is necessarily involved in relationships with community school systems and in most cases with individual families. The exact nature of these relationships, of course, varies widely from school to school and from community to community. Quite obviously campus school size, program, college policy and community size are all important dimensions of the relationship of a given campus school to its constituency.

It was the observers' impression that almost the entire range of possible school-community arrangements had been seen. It was the observers' opinion, however, that none of the arrangements seen was completely satisfactory to all parties involved.

Complete responsibility for the campus school by the collegiate institution involves a substantial commitment of personnel and monies to a function which most college faculty and administrators feel appropriately belongs to the community. The public schools, on the other hand, are not disposed to assume significant financial obligations for programs over which they have no control. The reconciliation of these two divergent points of view obviously involves some compromise and expression of good faith between the parties involved. Quite often the actual arrangements which were operating took the form of a community paying the college an amount equal to its annual per pupil cost, in exchange for which the community was freed of the need to assume physical and instructional responsibility for the campus school students. Other arrangements involved joint college-community responsibility for selection (and in some cases supervision) of laboratory school teachers and/or mutual agreement on pupil assignment to the campus school. The exact arrangements varied widely from locale to locale, usually reflecting a long history of campus school-community interaction.

In most of the institutions visited, the campus school and the community appeared to take existing arrangements largely for granted, neither party being completely satisfied but both parties willing to maintain the status quo. In several instances remarks were made which suggested that the campus school suffered from criticism and/or suspicion because of its exclusiveness or because of its atypical program. In most cases such comments were moderate, indicating more latent than overt hostility toward the school. In two communities, however, the observers' found the seeds of serious campus school-community problems. In both cases it was the observers' impression that the basic source of difficulty lay in the insensitive approach of the college to the community. From conversations with public school officials in one of these two communities, it appeared that the campus school had engendered feelings of having exploited the public schools and was in some danger of losing its pupil population.

As a whole, however, it should be said that most of the institutions visited enjoyed satisfactory or at least passive relationships with their communities, relationships which usually evolved over a number of years and through a number of personalities.

Practicum and observation. In terms of their contribution to programs of teacher education it was quite obvious that most campus-related schools could not continue to serve as a facility, or at least the sole facility, for providing student teaching experience. Most laboratory schools are not large enough to provide adequate student teaching facilities, and to make such facilities large enough to accommodate all students desiring student teaching experience would obviously be out of the question. As a replacement for first-hand experience, a number of the laboratory schools visited were providing (or planning) opportunities for a few in-service teachers and most undergraduates to obtain observation experience by means of closed-circuit television. It was the opinion of the investigators that the usefulness of such indirect observation varied widely depending upon the skill of the college instructor supervising the observation.

Separate faculties in campus schools. As most campus-related schools are operated, the faculty of the laboratory school and the faculty of the school of education remain almost completely independent of each other. Except for the director of the laboratory school, who very often does hold an appointment as an associate or full professor in the college of education, many teachers in the laboratory school hold only instructor status in the college or university, if they have academic rank at all. Occasionally laboratory school faculty are given affiliate status in the school of education; however, even in these instances the instructors of the laboratory school seemed to play no real role in the policies of the college. Faculty members in the laboratory school are typically given a full load of instructional responsibilities and not employed under any guise of conducting research or making innovations. The instructors in the laboratory schools typically had no research training, usually being employed by virtue of their teaching skills. As a consequence the faculty of the laboratory school neither by training nor by inclination was interested in initiating research or in carrying it through. Very often in conversation with these teachers they did report a willingness to cooperate with other persons wishing to use their students as subjects; however, they were not as a group disposed to design and carry out such studies themselves.

Research orientation not strong. Unfortunately, faculty members in the schools of education with whom we spoke appeared to be very ambivalent about the research potential of the campus-related school. A number of faculty indicated that they were either not currently engaged in research or were using research subjects outside of the laboratory school. If one rules out the development of instructional material, as for example at University of Illinois, in no institution visited was a faculty member from the college of education currently participating in a research project in the campus-related school. Attempts to gather information about previous studies carried out in the campus-related schools were also largely unproductive. In some cases graduate students had used campus school populations as subjects for their research but participation by college of education faculty members in a laboratory school was most conspicuous by its absence.

If the observers were to underscore one fundamental limitation of the campus school it would have to be in the area of faculty personnel. Although a great variety of physical facilities were visited by the observers, schools selected for visits were not those having the most limited physical facilities. There were, of course, great differences in the physical plants visited, ranging from buildings which had been built before the turn of the century to facilities where the paint was hardly dry. It may be that in many other institutions physical restrictions on observation, innovation, and research, present serious limitations. This, however, did not appear to be the case in most ot the institutions included in this report.

Campus schools not flexible enough. What appear to be the reasons for the limitations observed in campus school faculties? In some cases the problem was manifested by an unswerving dedication to a very limited point of view about educational practice, often to the point where no real innovation or experimentation was possible. The reason for such stagnation was varied, ranging in some cases from the excessive domination by one individual to other instances where, because an institution had established some notoriety in a field, it became understandably reluctant to change its image. Whatever the reason, in at least two instances the investigators observed the faculty in the college of education had moved so far away from the prevailing point of view in the laboratory school that there was essentially no common basis for educational interaction. It is the writers' hypothesis that policies which include long tenure for laboratory instructors and domination of the program by a single individual tend to operate to the disadvantage of the laboratory school and are policies which probably should be avoided if the campus school is to maintain its vitality and capacity for change.

The problem of the laboratory school is partly one of its own making by not recognizing that it cannot indefinitely exist out of touch with the broader objectives of the institution in which it exists. It was this point which came home again and again to the observers as they pulled together their impressions.

In those institutions where the laboratory school was found to be strongly supported, the campus school and the sponsoring institution seemed to be rather closely aligned in overall emphasis and direction. In those places where the laboratory school had the most tenuous ties (and in some cases was in actual danger of being closed) it was the observers' opinion that the laboratory school had either lagged behind the interests of the faculty or for other reasons had made its facilities inaccessible to the faculty of the university.

Although the instance of a laboratory school falling behind the interests of a faculty is the mode, the visitors observed at least one situation in which the laboratory school was designed to anticipate faculty research interests but unfortunately these interests have not yet matured. Whether or not this laboratory facility can sustain itself until the research interests of the faculty catch up (assuming this will happen) is yet to be determined.

It is the investigators' very firm conviction that a laboratory school cannot continue to exist by supporting functions and activities which are not consonant with the interest and purposes of the total academic community of which it is a part. The laboratory school which attempts to assume roles and responsibilities which are not endorsed by the faculty of the institution supporting it is not likely to survive.

By Way of Summary

It would be presumptuous for the writers to assume, after having visited only a small select sample of college-related schools, that they know the campus school as an institution. It was never the intent of this inquiry to achieve such an insight and the writers hereby disclaim any such clairvoyance. It was, however, unavoidable that certain generalizations and common problems would arise out of the visits made by the observers and it is these inter-institutional impressions which the writers have attempted to synthesize in this chapter.

Perhaps if one were to put his finger on the basic problem that faces the college-related school it would be that not many people in education are really interested in whether the laboratory school survives or perishes. In many institutions the campus school has been allowed to chart its own course, unchallenged for so many years that it is often difficult to locate any common ground between the school and its collegiate affiliate. Understandably, faculty in colleges of education tend to be indifferent to a campus school which rarely intersects their interests.

If the campus school is to survive it must be organized to insure some direct participation by the faculty of the college of education. If this is not the case the two institutions are likely to grow further and further apart leaving the campus school, as so often has been the case in the past, simply a good private institution for faculty children.

In the opinion of the writers most college-related schools cannot continue to exist as autonomous entities whose primary function is the education of a population of elementary or secondary school children. If the campus school is to survive it must re-examine its objectives and functions, relating them to the broader purposes of the academic setting in which it exists. For many laboratory schools such a realignment of functions will mean a de-emphasis of responsibility for the education of a continuous population of elementary or secondary school pupils, de-emphasis of "live" observation for teacher candidates, and substantially greater commitment to experimentation, innovation, demonstration, and research. In most schools such a realignment of purposes will be agonizing, requiring re-establishment of long dormant relationships with academic faculty and substantial reorientation of laboratory school personnel. In the judgment of the writers the two most important requisites for the maintenance of a vital campus-related school are a demonstrated interest on the part of the faculty members of the college of education that such a facility be available for observation, innovation, and research; and second, that organizational and financial provisions be made which encourage and insure the dynamic and innovative character of the campus-related school, preventing it from stagnating outside the mainstream of educational progress which will characterize the last third of the twentieth century.

If the campus school cannot or will not adapt itself to a new and expanded set of educational responsibilities it will, in all probability, prove to be an institutional counterpart of the Dodo bird.

The Dodo never had a chance. He seems to have been invented for the sole purpose of becoming extinct. . . .[6]

---

[6] Cuppy, W. How to Become Extinct. New York: Farrar and Rinehart, 1914.

Appendix

College-related Schools Visited in This Study

The Experimental Learning Center
The University of Arizona (Tuscon)

The Laboratory School
Brigham Young University (Provo)

The University Elementary School
The University of California at Los Angeles (Los Angeles)

The University of Chicago Laboratory Schools
The University of Chicago (Chicago)

The Edwin O. Smith School
The University of Connecticut (Mansfield-Storrs)

The P. K. Yonge Laboratory School
The University of Florida (Gainesville)

Peabody Demonstration School
George Peabody College for Teachers (Nashville)

University High School
The University of Illinois (Champaign-Urbana)

The University School
Indiana University (Bloomington)

The Meaks Meadow School
The University of Massachusetts (Amherst)

The Laboratory School
Millersville State College (Millersville)

Campus School
Newark State College (Union)

Campus Laboratory School
San Diego State College (San Diego)

The Campus School
The State University College (Fredonia)

The Campus School
The State University College (Oswego)

CHAPTER IV

FROM A CAMPUS SCHOOL TO A RESEARCH, DEVELOPMENT AND DISSEMINATION CENTER

Paul W. Bixby
Professor of Education
The Pennsylvania State University

and

Harold E. Mitzel
Professor of Psychology and Education
The Pennsylvania State University

PRECEDING PAGE BLANK-NOT FILMED

Over the first half of this century, the history of the college-related elementary and secondary schools in America is the story of a useful, but, with a few notable exceptions, a disappointingly pedestrian device for improving education. Those exceptions came in the early years of the 1900's, the same decades which saw teacher education find its professional identity in the colleges and universities. For a time the schools which set the standard of excellence and which were held up as the models to guide the public schools were the "campus" or "laboratory" schools. Hutton in Chapter I has described the best of the era. But the story of the last 30 years is different. It is the story of a couple of hundred schools striving valiantly to do a job too large for their budgets and their imaginations; a story which should be ready for another chapter in the second half of the century.

The present status of campus schools, as described by Lathrop and Beal, offers very little hope that the outline for the new chapter has been adequately sketched. Apparently the lessons which the earlier college-related schools were organized to teach have been learned well. Able public school leaders have studied the "models" and with greater financial support than is usually available in higher education have pushed public school dreams and practices beyond the campus school "models."

Brickell[1] after studying all of the educational resources of New York State recommends that the campus schools of the eleven state university colleges be closed. He bases his suggestions on the existence of a number of contradictions which he finds to be characteristic of campus schools. Their chief function seems to be the demonstration of conventional wisdom regarding instructional practices, a function already well served by the public schools. We essentially agree with Brickell's diagnosis of the malady, but we believe that campus schools can change themselves given wise and dynamic leadership. Those that cannot rise to the challenge of leadership during the next decade should be closed.

It is the purpose of this chapter to conceptualize a new plan for a college-related research, development and dissemination center, a plan that would yield an agency with a chance of once again capturing a leadership role among the schools of America. If such a position is to be created for the college-related research and development center in the years ahead, then these minimum conditions must be met:

1. Goals must be restudied and restated so that they fit better today's challenges both to elementary and secondary education and to teacher education.
2. Organizational patterns for combining higher education resources with those of forward-looking public schools must be cooperatively

---

[1] Brickell, H. M. Organizing New York State for Educational Change. Albany: State Education Dept., 1961.

developed in order to enhance the efforts of both as they carry out their separate but closely related and interdependent missions.

3. Programs must be created and carefully evaluated that will again be models to be studied and hopefully emulated by public and private schools.
4. Staff must be recruited who have the ability and the desire to comprehend a "different" approach to a college-related research and development center.
5. Buildings and equipment that anticipate the future, including the maximum use of the newer communication and instructional media must be designed and built.
6. A research component must be structured in such a fashion that it cannot be pushed aside by the needs of the daily operation of a school.

Each of these conditions will now be elaborated in hopes that a clear and meaningful picture of tomorrow's college-public school development activities will emerge.

Goals for the New Research, Development and Dissemination Center

History is clear. College-related or campus schools have had three chief purposes, in addition to the assumed need to provide the best possible school experience for the pupils who attend:

- to provide practicum sites for novice teachers,

- to demonstrate best and newest practices for teachers in training,
- to discover better ways of teaching and to make the new knowledge available to the profession.

And, with rare exceptions, some of which are described by Hutton in Chapter I, campus schools of the past ranked their goals in the order named above. Since resources have always been limited for campus schools, it is not surprising that more has been accomplished with the higher priority items than with research, the last item on the list.

When teacher education populations were small, student teaching was carried out in campus schools with considerable satisfaction. Many, perhaps most, of the educational leaders in this country who first began teaching in the 1920's and 1930's received their practicum experiences under the careful supervision of "artist" teachers in campus schools. But, partly because of increasing numbers and partly because of the contradiction between providing a practice site for novices and at the same time being effective demonstrators and seekers after new truths, the priority among the goals for the campus school has been shifting. In practice it appears that the former No. 2 purpose, "to demonstrate," has become No. 1. The survey by White[2] indicates that most campus school officials claim that research is now a second and sometimes even a first priority item. The interviews conducted by the authors of Chapter II of this report confirm White's findings. No one now claims student teaching as the campus school's first priority purpose. Probably the goals, "to demonstrate" and "to discover," can stand together in the same school without developing stultifying conflicts. Most educational research can be accomplished best in schools where high quality learning experiences are provided for pupils and seldom would data gathering be handicapped by carefully controlled observations of the learning environment and the processes of teaching. Some of the same flexibility of space and facilities that will permit experimentation will also be ideal for demonstrating the best of current practices. The newer media installations for thoroughly modern teaching also should be useful in providing interruption-free observation and, when needed, effective communication about research in progress.

---

[2] White, Norman D. The Status and Potential of College Controlled Laboratory Schools. Unpublished doctoral thesis, George Peabody College for Teachers, 1964.

The research goal for the college-related school probably needs some further clarification. Campus schools never have been large enough to provide opportunities for all the data-gathering needs of educational researchers. Also, because of selective factors which cannot and perhaps should not be eliminated when campus school students are chosen, the collected data may always be limited in its usefulness for research which presumes to develop broad generalizations applicable to the major population of public schools.

But, in 1965, with the aid of modern computers, it is not necessary for conclusions to be drawn from small, poorly selected samples.

Thousands of bits of information can now be rapidly and inexpensively classified and analyzed, thus opening to educational researchers the chance to use the public schools productively for securing data. Hence, it might seem at first glance that the campus school has lost its research justification.

But, we think this is not so! Research projects need to be designed and tried out in circumstances that are manageable, prior to field testing and widespread data-collecting efforts. There needs to be some assurance that the plans will work, that the designs are sound, that pupils, teachers, and parents will cooperate with the experimental phases of the projects. It is precisely at this research design stage that the research and development center of tomorrow becomes most valuable. It becomes the learning laboratory in which flaws in design can be spotted and corrected, in which data-gathering procedures can be perfected and in which personnel can be trained for later roles in demonstration or research projects as they move from the research and development center into the public schools.

So, the last two of the historically significant goals for the campus school have been combined into a new, primary purpose for the research and development center of tomorrow: to discover and develop better ways of teaching and to disseminate these ideas through demonstration.

Cooperatively Developed Organization Patterns

College-owned, College-controlled Campus School

Today's campus schools use several organizational approaches as they develop cooperative working relationships with public schools and their communities. First, there is the college-owned, college-controlled school to which children and adolescents come as tuition students with tuition paid either by individuals or by school districts. Examples of this organization pattern are not difficult to locate. The campus school belongs to the college but it reaches out in a number of ways to the students of the community, furnishing a bridge, albeit sometimes precarious, between the teacher education college and the research and development interests of the public schools.

Public School-owned, College-contract Campus School

Also, there are public school-owned and operated buildings under contract with the colleges to furnish certain specified services and opportunities for college personnel in return for services which the colleges and universities can offer the public school systems. Since only about 200 of the colleges and universities that have teacher education programs have agencies designated as campus schools, the remainder fall in some fashion in this category. Sometimes the personnel of schools so designated consider themselves as campus school faculty members but more often there is no campus relationship publicly identified. Again, as with the college-owned campus school, this is a frail bridge between the college and the public school system. But, for the great majority of teacher education colleges in the United States there are no alternatives in 1965.

College-owned, Public School-controlled Campus School

And, third, there is at least one college-owned but public-school controlled campus school to which pupils are assigned by the public schools and in which curriculum decisions are made by public school personnel. Responsibility is probably shared more equitably than in either of the former patterns.

The Cooperative College-Public School Research, Development and Demonstration Center.

It seems probable that although these three categories can be identified, there is no one, best way to organize a campus school. Evidence both historical and current from Chapters I and II indicates variety rather than homogeneity in the way such schools are set up. Examples of effective organizations for educating children can be found in all categories. However, for a number of reasons, we are recommending that a plan be developed cooperatively that will permit resources and support to be drawn from both college and public schools.

Elementary and secondary schools are expensive institutions. Funds to support them are difficult to locate and tap. Public schools usually can justify operational funds more easily than can the college.

But, the college can probably muster stronger arguments for spending money on demonstration and research than can the public school agency. So, if the goals described earlier are to be met at a reasonable level of satisfaction, financial support probably must come from both sources.

Many competent educators who have consulted with us, especially those who are experienced administrators, warn against the dangers of divided control which seems always to accompany shared support. We agree that the problems of cooperative control and leadership are demanding, but we consider it necessary if we are to meet the challenge. It seems to us that anyone who will assess the circumstances of financial support for the existing campus schools in America must conclude as we do that with a very few exceptions the choice is clear between having the college in complete control of a school with minimal financial support or working out a joint control and leadership plan for a research and development center whose financial support rests firmly upon the community tax base as well as the college's resources. We recommend the latter.

Furthermore, educational research is notorious for its inability to influence, quickly, the on-going operations of the schools. As research, development and demonstration become the primary purposes of the center, the values of policy control must be balanced against the values of intimate communication opportunities based on shared responsibility. Again, we favor the latter.

Based on this analysis of the organization patterns of campus schools in the present decade, and with full consideration of the goals expressed earlier, we propose another conception of organization for the research, development and dissemination center of tomorrow. Instead of creating a new bridge institution called a campus school at those colleges that do not now have them or instead of fighting to maintain campus schools that lack enthusiastic support from college and community, we propose extending the functions of two existing institutions, the college of education and the public school system, until they meet at some approximate mid-point over the gap that traditionally separates the two institutions.

If the public school system will define research, development and demonstration as some legitimate, even though minor, part of its work of providing effective education for the children and youth of the community, as recommended in 1963 by the N. E. A. Project on Instruction,[3] then it will quite naturally reach toward the college for technical assistance, for research facilities, for added personnel to improve its own responsible moves toward research.

And if the college will recognize its need for a large and effectively functioning school laboratory even though its higher education funds are inadequate to operate one, it will match the outreach of the public schools as it seeks student populations, classrooms and skilled practitioners, to assist with educational research and innovation.

---

[3] National Education Association. Schools for the Sixties. A report of the project on instruction of N. E. A. New York: McGraw-Hill, 1963.

We think there probably has been too much emphasis on the campus school as an autonomous institution. Its functions seem indistinguishable from the tasks assigned to its larger, parent institutions, the college and the public school system. Colleges claim the roles of teacher educator and educational researcher. Public schools concentrate their resources on the best possible programs for today's students while they learn and re-tool to do likewise tomorrow. Compare these with the purposes claimed for the campus school earlier in the chapter.

Rather than generate a new institution, the campus school, to fulfill the avowed purposes, we suggest a simple extension of each existing agency until the goals are achieved, until the gap is filled. The college extends its facilities and staff for research and development in return for access to the public school laboratory. The public schools extend their facilities and staff for operating good laboratories in return for access to development and in-service assistance. Together they provide the wherewithall to achieve the purposes of the traditional campus school.

Programs to Emulate

"To demonstrate" best teaching practices appears on everybody's list of purposes for the campus school and it remains prominently displayed in our statement of purposes for college-public school research and development centers. One reason for proposing this revised conception of school organization is that it promises so much for school program development, for program flexibility, for program leadership in an era of rapid change in all phases of school and society.

Institutions--all human organizations--begin developing conservative tendencies from the moment of formation. Schools' leaders struggle continuously against the forces of inertia which block experimentation and development. Chapters I, II and III document well this attribute of the campus school in America. Of course, the same rules apply to colleges and to public school systems, when they are considered as total organizations.

But, human institutions can, if they are large enough to afford it, maintain experimental segments that can escape many of the inertial tendencies of the larger body. Large industries maintain research and development centers and pilot plants on the periphery of their operations, as the growing frontier of tomorrow's business production. Production supervisors who are wedded to the current ways of doing things are not assigned to R & D (research and development), nor do those who are assigned there now remain long beyond the termination of their creative drive. Only by having a small (though in industry, not insignificant) percentage of each year's profits invested in creating tomorrow's moneymakers can industries survive and prosper. It is this model we hope to adapt to the college-public school research and development center and its role of program demonstration.

Of course, a college, as a total institution, has difficulty in maintaining a research orientation; so, also, does a public school system often fail to remain experimental in posture. But, both colleges and public schools can maintain segments of their total efforts at the research-development-dissemination level, just as can an industry. Total institutions of whatever size struggle with the same problems of conservatism and inertia, but larger agencies such as colleges and public school systems can devote portions of their resources to special research, development and demonstration activities whereas small campus schools cannot finance such efforts from their comparatively small budgets. Large institutions can assign today's most creative minds to the research, development and demonstration center and then return them to regular teaching roles or to more routine development or administrative tasks as their ideas are tested or as ever new and fresh viewpoints need development in the center.

What kinds of programs will we hope to find in the college-related public school? How will these programs differ from those in other public schools? Remember the goals we are seeking for the research and development center: "to discover" and "to demonstrate." These two goals are, of course, in addition to the always over-riding intention to provide suitable educational experiences for the pupils of the school system who are assigned to the building.

In the college-related public school system it will be expected that considerably more attention than normal will be given to experimenting with new ideas and in carefully designing these experiments so that the results can be shared with other teachers and other schools. Whenever some significant finding can best be shared by a demonstration, the college-related school system will set up such a project and will record it in as many ways as possible for rapid and effective sharing with others.

Probably all effective teachers are constantly trying new and different approaches to their work, but lack of attention to designing the new, and a notable lack of evaluation after the new practice has been tried, lead to great difficulty in sharing with others. This shortage is to be deliberately avoided by the staff of the research and development center.

It seems unlikely that the pupils of the school system will be aware of any dramatic differences from the schools attended by their friends in other communities. Perhaps a few more adults will occasionally be in evidence, but not ever so many as to be detrimental to good teacher-pupil relations. Sometimes their teacher may tell them that the TV cameras are live today in order to make a record of activities for study by others. Some features of the physical plant owned by the college may occasionally elicit questions from the more curious pupils. But, for the most part, pupils will go to school in the college-related school system with little, if any, awareness of being treated differently from other youngsters in other school systems. Only if this is true can the subtle variables of human learning situations be controlled so the results of the studies will be safe to disseminate.

The programs for pupils in the college-related school system will not necessarily be superior to those for pupils in other school systems. There will sometimes be differences in programs, but these may not be more variable than those differences that often exist among buildings in the same system. The difference will be that what is being done in the college-related school system is being studied by competent researchers working as team members with the teachers and school administrators.

What the pupils learn or when they learn it will usually not differ from the content or timing for other pupils. Perhaps the methods of teaching will occasionally seem unorthodox. In the later 1960's more emphasis than usual will probably be placed on individualized learning using modern media for presenting the lessons to the pupil. This approach demands plans for the continuing progress of pupils through the program and attendant minimizing of mass instruction and lock-step scheduling. What will be the emphasis for the 1970's? Whatever it is ought to be under continuous, intensive study in the college-related school system.

Staffing the Center

With the organization pattern described earlier and the program descriptions hypothesized, it seems helpful to describe the staff in terms of some additional assumptions. Each reader of this chapter will, no doubt, have his own picture of a cooperative program that will need to be staffed, but in order to be clear in this discussion, permit us some further hypothetical illustrations.

We are visualizing a college-public school cooperative relationship in which these physical plant conditions exist:

1. The college has built and continues to own and maintain a building on a site cooperatively selected to meet housing needs of the school district as well as the special needs of the college for research space.
2. The college-owned building contains a complete elementary school for approximately 300 children and a modern foreign language and mathematics wing for the adjoining community secondary school. (Other secondary school needs might just as appropriately be met.)
3. The college-owned building also houses the research and development center of the college with a considerable amount of flexibly usable space which is not regularly occupied by pupils.
4. The other buildings of the public school system are related in a variety of ways to the research and development center, but usually in less intimate fashion than the adjoining college-owned building.
5. The other buildings of the college on the nearby campus house personnel who are also related in a variety of ways to the research and development center.

In this hypothetical situation, the details of which are no doubt somewhat different from any real circumstance that will ever exist, but the general picture of which is accurate, what kind of people will be needed to man this research, development and dissemination center? The staff positions needed will be described briefly and some of the desired qualifications will be outlined.

The principal will be a permanent administrative and supervisory person with full-time responsibility to the school system. He will report directly to the superintendent of schools in the fashion of all other building principals, and will be answerable to the superintendent of schools for the programs for pupils and for the leadership of the teaching faculty in the center He will be selected jointly with the college in order to insure qualities that permit cooperative planning with the chief college representative in the research center, the director of research.

The teachers will be regular members of the public school teaching staff, who are selected for the research, development and dissemination center because of their interest in trying new ideas, and their willingness to work with a research team. Assignments to the center building will be for limited periods with constant opportunity for evaluation and withdrawal without prejudice whenever either the teacher himself or the principal feels reassignment is wise.

Secretaries and clerks for the school are to be permanent employees of the school system and be responsible to the principal.

Director of research, a permanently assigned employee of the college who reports to the dean, will be jointly selected with the superintendent of schools in order to insure a level of trust that permits cooperative planning of research projects with the principal and the teaching staff of the center and with other personnel of the school system.

The project head usually will be a college faculty member who wishes to carry out a carefully planned experiment in the research and development center. He coordinates his activities with the director of research, but functions during the life of a project as the responsible leader of a research team.

Research assistants, temporary members of the college staff, will be assigned for limited periods of time to project teams in the center with their work coordinated by the project head.

Research technicians and secretaries for the center will be permanent employees of the college responsible to the director of research.

As this personnel list indicates, the research, development and dissemination center will have a very small permanent staff and even the principal and director of research must be subject to recall and reassignment at the pleasure of the superintendent of schools and the dean of the college. Creative demonstration teachers can be assigned to the center for periods of time long enough to permit fulfillment of a plan but can be moved back to less vulnerable positions in the school system when interest cools or a different kind of demonstration is needed. Research assistants may be graduate students with thesis plans to be designed and tested, but they must always function under the close supervision of a member of the graduate faculty in order that all contacts with young learners can be responsibly controlled.

As a minimum level of cooperation, all research, development or demonstration projects carried out in the college-related public school system must be jointly approved by the director of research and by the principal of the center school. The principal is obligated to permit no research, development or demonstration that is detrimental to the education or health of pupils of the school and he must answer to the superintendent and to the community for the center's learning program.

The director of research is responsible for the nature and the quality of the studies made in the school and for the dissemination of findings to other researchers and to the schools of the country. Separately, the principal and director of research can accomplish little or nothing that is different or pragmatic; together they should be able to tap resources for an exciting forward thrust for both college and school system.

The Building and Its Equipment

School buildings and equipment at their best should house people and facilitate the programs which people create. At their customary level, school buildings merely protect people from the weather and interfere with their ideas and activities. It is our hope that we can visualize for the center a building that approximates the first definition.

The people to be housed have just been identified and some features of the programs they might create have been described. What do these indicate about the building? Using the same hypothetical set of circumstances already outlined on previous pages we now elaborate on the nature of the building.

Next to competent personnel, space in which teaching and learning projects can be executed looms large as requisite for effective educational research and useful dissemination through demonstration activities. The usual public school plant is not built with this essential "elbow room." Public schools in alert, growing communities are almost always underbuilt. Every nook and corner is pressed into service for everyday school-keeping activities. Hence, we propose that the college with its primary concern for the research and development activities should shoulder the responsibility for providing the unassigned space into which experimental and demonstrational projects can expand and contract. Also, the college should provide as much additional space for pupils in regular teaching-learning situations as can be financed and as seems fair to both institutions.

In the illustrative case being cited in this chapter, the college, after joint planning with the superintendent and school board to insure the appropriateness of the building for use by both institutions, has built a building in the community's educational park. Some of the earlier mentioned public school "outreach" toward the college is housed in the college-owned and operated building.

Elementary schools can be operated efficiently in small enough units to permit housing a complete program for nursery through grade six in one wing of the college-owned building. Another wing of the building, intended to augment the facilities of the public schools for secondary school programs, has been designed to house two departments of the junior and senior high school, modern languages and mathematics. These two wings of the building, one built for an elementary school and anotherconstructed to supplement the community's high schools, are occupied to full capacity by pupils and teachers under the direction of the principal.

Between these two wings, in the heart of the building is the research, development and dissemination center, the only part of which is occupied by permanent staff is the director of research office suite. Other offices, conference rooms, television monitoring rooms and production spaces stand ready for assignment to teams of researchers with approved educational problems to study. Intimately related to the work spaces of the researchers are the flexible classrooms, large spaces designed to permit rapid and inexpensive conversion to meet the varied demands of research and demonstration. These flexible spaces are not assigned to the everyday program of school-keeping, but are occupied by design as they are needed by research teams or for demonstration purposes.

Whenever possible the furnishings of the building will be kept light and movable. What is today a private office of a senior researcher may need to be a multiple occupancy office when tomorrow's team begins its work. A seminar room may need to double as a television monitoring room before the month is past. The classroom which is being used this semester to demonstrate uses of new curriculum materials for high school American history may need to be revamped for an experimental study of young children before the school year is over.

The accessability of utilities and transmission cables is a critical characteristic especially in the experimental classroom areas. By constructing the floors properly, only a few hours are necessary to change electrical wiring or to add computer, television or other media tie-ins.

In Chapter VI, Wheeler has developed the architect's specifications for such a building as we have talked about in these last paragraphs.

A Research and Development Orientation

Private business and government agencies concerned with the production of goods spend much money for research and development. Unfortunately government agencies at all levels, which carry primary responsibilities for social services, find it difficult to secure funds for research activities. And, partly because research and development funds have always been so meager and partly because research in human behavior is so much more difficult than research on product development, applied research in the social sciences, including that in the field of education, remains stunted and undernourished at great peril to all human society.

All modern national groupings of mankind depend heavily upon their schools, the organized educational agencies, for the conservation and the improvement of their societies. Philosophers and scientists who study the nature and the activities of the school are clustered in universities and colleges in this and other countries with disappointingly few laboratories in which to test research designs and try out promising new conceptions of the process of education.

A careful reading of Hutton's chapter on the history of college-related schools in the United States and of the Lathrop-Beal chapter yields some understandings of the reasons why the research centers have never developed, or when campus laboratory schools have for brief periods of time, approximated the high hopes envisioned for them, they have speedily changed character to the detriment of the research and development functions. Only as we today comprehend the lessons of the past and deliberately structure tomorrow's research and development centers to avoid pitfalls recorded for us, are we apt to succeed where others have failed. Perhaps in some of the innovating schools of the present as described by Lathrop and Beal are clues for the new look.

The research effort of the research and development center must have adequate support, both moral and financial. First of all, some arrangement must be invented to keep research activities from being postponed until the more demanding operational activities are satisfied. In the usual campus school it is virtually impossible to protect resources for research purposes. There are never enough teachers to provide all desirable instructional services and never enough money to purchase all the useful teaching aids desired by a wide-awake teaching faculty. So in most traditionally organized campus schools, even those with reputations for innovating, by the time the school-keeping expenditures have been authorized, little or nothing remains for the research and development functions. A way must be found for committing staff and money in advance, to the research and demonstration functions. Then and only then can research efforts be planned and carried through to completion. Only then can well qualified educational researchers be employed and retained.

We have already proposed that a dual staff be employed for the research and development center, a teaching staff under the direction of the principal, a public school employee, and a research staff supervised by a director of research from the college. Our reasons for this dual staffing pattern, of course, relate to the financial responsibility for the two functions of the center, but more particularly we are concerned about the differing competencies of the two groups of professionals.

Chapters I, II and III give sufficient evidence of a lesson that should long ago have been learned by the education profession, i.e., that faculty members who like to teach elementary and secondary school youngsters are not apt also to be committed to research nor skillful in the use of research techniques. In fact, it may also require a very different kind of leadership for a research staff than for a teaching staff. Probably it is not realistic to expect a research director to administer an acceptable school for children; there is much evidence that effective principals don't find time to get research programs off the ground.

In order to provide a viable balance between research-development-demonstration on the one side and high quality school experiences for pupils on the other side, we recommend the twin staff with separate directors operating under separate budgets, but with built-in compulsions to work together--demands such as those which accompany joint selection of principal and director of research, and by joint occupancy of a college-owned building in a public school education park.

Categories of Research

What are the research, development, and dissemination activities that should be undertaken in the new center?

Our answer to this question can best be introduced by a statement of our impressions regarding the self-image of the typical campus school. By and large campus schools have conceptualized an extremely parochial role for themselves. Their main allegiance has been to the pupils who attend their classes and secondarily they have agreed to participate in the preparation of teachers from the local college or university. Campus schools have not, with a few notable exceptions, identified with explorations and innovations in education, nor with the necessity for dispensing new knowledge to practitioners. It seems to us that the conception of its role held by the college-related school must change in order for this institution to be revitalized and become a positive force in our society. A changed image would lead inevitably to the elimination of many of the conditions which now block progress.

Assuming that existing campus schools can change in the direction of cooperative research, development and dissemination centers, and that new ones will be organized, some of the kinds of studies for which we foresee a need are indicated below, not necessarily in the order of their importance:

Studies of Teacher-pupil Classroom Interaction

Evidence from pioneering investigation of classroom behavior by Withall,[4] Flanders,[5] Medley and Mitzel,[6] and Smith[7] show the wide diversity with which psychological and cognitive variables are being employed by teachers as they attempt to instruct pupils. Some patterns of interactive behavior are undoubtedly more effective facilitators of pupil learning than others. These various identifiable patterns need to be explored in carefully structured experiments within a wide range of subject matter and pupil age-grade classifications. Given a research and demonstration school environment, skilled teachers can be taught to manipulate their behavior under experimental conditions so that known patterns are approximated. It follows that the effects of dissimilar patterns of behavior on children's achievement and attitudes can be then evaluated.

---

[4] Withall, J. Development of a Technique for the Measurement of Socio-emotional Climate in Classrooms. J. exp. Educ., 17, 347-361, 1949.

[5] Flanders, N. A. Teacher Influence, Pupil Attitudes, and Achievement. Minneapolis: University of Minnesota (U. S. Office of Educ. Coop. Res. Project No. 397), 1960 (Mimeographed).

[6] Medley, D. M. and Mitzel, H. E. A Technique for Measuring Classroom Behavior. J. educ. Psychol., 49, 86-92, 1958.

[7] Smith, B. O. A. A Study of the Logic of Teaching: A report on the first phase of a five-year research project. Washington, D. C.: U. S. Office of Education, 1959, (Dittoed).

Studies of Media Integration into Classroom Practices

Perhaps the development of programed learning materials offers the clearest example of the kind of media study that needs to be made under this rubric. Programed texts, programed film-strips, programed television, and programed slides have been available for a number of years in restricted areas of subject matter, but there is little clear evidence of the optimum ways to articulate programed materials into existing instructional practice. New developments such as computer-assisted instruction offer similar problems.

Studies of Teaching Strategies

It is a source of considerable concern to educational psychologists that principles and generalizations from modern psychological learning theory have had so little impact on school practices. The gap between the laboratory findings and the day-to-day operation of the schools is a chasm of great width. What is needed is a series of studies that will bridge this gap, investigations that will translate learning concepts such as reinforcement, inhibition, feedback, transfer and retention into instructional operations.

Studies of Learner Differences

That pupils differ from each other in physical traits and in certain status characteristics has been well known for a long time. What has not been well documented are the many ways in which pupils differ as learning organisms. Some children seem to need visual and spatial approaches to subject matter, others can handle verbal and conceptual stimuli, still others are best reached by auditory and kinesthetic stimuli. The trick is to be able to determine in advance which child needs a particular approach in a particular subject matter configuration. Only in research environments such as college-related public schools where there are potentials for longitudinal studies with the same group of pupils is it feasible to mount productive investigations of psychological differences among learners.

Studies of Environmental Effects on Learning Efficiency

Children have demonstrated that they can learn in classroom environments that vary tremendously in temperature, furniture, humidity, lighting, etc. However, the interaction between environmental variables and other instructional process variables has received little or no study. A research and demonstration center of the general type envisioned in this chapter is almost a necessity for progress along these lines, because of the need to manipulate the physical aspects of classrooms. Typically public schools do not make flexible facilities available for drastic alterations in learning environments; hence, the need for college-controlled space for these studies.

Studies of Student Teaching Instruction

Almost every one connected with education believes that the student teaching experience is the heart of the teacher preparation program. At the same time relatively little research has been done in the past half-century to seek improvements in the pattern of student teaching goal orientation or supervision. A research and development center offers a real opportunity to investigate promising new ways to teach student teachers, and to create new simulation devices for the instruction of student teachers.

Studies of New Curriculum Developments

It is a truism that the changes in subject matter content, which have had such a tremendous impact upon the schools in the last decade, have not been authored by persons from the discipline of education. At the same time honest evaluation of curricular innovations such as modern mathematics, modern physics, the new biology, etc., have not been forthcoming from the innovators in the learned societies. This task of evaluating and modifying the new curriculums is still to be done, and research and development centers of the type we have envisioned can make a contribution to the solution of this problem.

Studies of Educational Innovations

In spite of brave words and shrewd guesses educators are essentially ignorant of the processes and means by which new ideas are translated into educational practice. The lack of pressure on schools from the profit motive may account for some of the inability of schools in contrast to industries to overcome inertia. However, there are, undoubtedly, a long list of forces at work which deserve careful study. Because of their intimate concern with dissemination, research and development centers should include studies of educational change processes in their research agendas.

A Final Word

We opened this chapter by stating that it was one of our purposes "to conceptualize a new plan for a college-related research, development and dissemination center--an agency with a chance of once again capturing a leadership role among the schools of America." All the evidence points to the necessity for something new and different to evolve. Present approaches seem unable to maintain a campus school at an innovative level for a sufficiently extended period of time to permit its making a significant impact on educational development in the United States.

But, large industries can and do maintain research and development centers with continuing productivity. Large universities have long demonstrated their ability in many fields to encourage centers of innovation. Many school systems are large enough to support excellent development and in-service programs. From these three related phenomena emerges our conception of a college-related research, development and dissemination center in a public school setting.

It seems apparent that industries as well as colleges and public school systems all face the same problems in maintaining a posture that is conducive to invention and innovation. From Hutton (Chapter I), from White (Chapter II), and from Lathrop and Beal (Chapter III) the evidence is overwhelming that campus schools, when they are organized as total and relatively autonomous institutions, also find it difficult to provide a climate which encourages experimentation. It seems virtually impossible for them to maintain a research posture over an extended period of time. Yet, continuity in direction and in drive are crucial for any agency if its results are ever to be substantial.

Hence, our proposal for extending the college and the public school system toward each other until they overlap in their research, development and dissemination functions. We do not suggest a new institution to replace today's campus school. Rather, we believe that the legitimate and significant innovative functions of the two existing institutions, the college and the public school system, can be cooperatively planned, housed, managed and financed. We make no naive claims that a center so conceived will always function effectively. People furnish the ideas and the motion which produce the results of any agency, no matter how it is organized. The college-related research, development, and dissemination center proposed in this chapter will function no better than do the people who man it. However, we are convinced that within the structure of such a center, creative and vigorous professional people can build a program of research and innovative practices with more ceiling permitted and fewer obstacles in the way than exist in the present campus schools of America.

PRECEDING PAGE BLANK-NOT FILMED

CHAPTER V

FUNCTIONAL REQUIREMENTS FOR INSTRUCTIONAL MEDIA AND MEDIA RESEARCH

L. P. Greenhill
Director of the University Division
of Instructional Services
The Pennsylvania State University

PRECEDING PAGE BLANK-NOT FILMED

The Role of the Existing Campus School In Media Research and Educational Innovation

The problems facing education today require new solutions. These problems include the necessity of educating ever increasing numbers of students to higher levels of attainment, the need to stimulate creativity so that our citizens can find new and imaginative answers to the problems that face society today, the necessity for developing and providing a system to encourage life-long learning so that our citizens can be prepared for several successive careers which will be occasioned by the rapid technological and social changes which are occurring in the world.

There is little doubt that the newer media of communication are playing an increasingly important role in assisting education to meet and solve these problems. The amount of basic research on instructional films, television, and programed learning, for example, has been prodigious since World War II.[1] More recently, basic research has begun to develop in language laboratory and computer assisted instruction.[2] New formats and new uses for these media are being rapidly innovated.[3]

---

[1] Greenhill, L. P. Final Report Instructional Film Research Program. University Park: The Pennsylvania State University, 1956.

May, M. A. and Lumsdaine, A. A. Learning from Films. New Haven: Yale University, 1958.

Abstracts of Research on Instructional Films and Instructional Television 1950-64, Editors: MacLennan, D. W. and Reid, C. Stanford: Institute for Communication Research, 1964.

Stolurow, L. H. Teaching By Machine. Washington, D.C.: U. S. Office of Education, 1962.

Technological advances, appropriately used, have the possibility of revolutionizing our educational practices and of bringing excellent teaching resources to many learners in such ways as to stimulate a wide variety of learning outcomes.

Campus schools might have been expected to play a leading role in educational research and instructional innovation, especially with respect to the use of newer media. Regrettably, with a few exceptions, this has not been so. In Chapter III, Lathrop and Beal comment as follows: (Page 83.)

> Apart from rather pedestrian use of instructional media in the campus school, the observers were struck by the almost complete absence of innovative ideas about the use of new media in teacher education. Although campus schools have many unique opportunities to control variables which perplex researchers in public schools, little, if any, evidence of media research being done in the laboratory schools was found. By and large, most

---

[2] Morton, F. R. The Language Laboratory as a Teaching Machine. Ann Arbor: University of Michigan, 1961.

Dick, W. The Development and Current Status of Computer-Based Instruction. American Educational Research Journal, Vol. 2, No. 1, Jan. 1965.

[3] New Media in Higher Education, Editors: Brown, J. W. and Thornton. Washington, D. C.: National Educational Association, 1963.

Higher Education: Some Newer Developments, Editor: Baskin, S. New York: McGraw-Hill, 1965.

campus school staffs had not developed the use of new media to any greater degree than could be found in the typical public school.

Research-centered schools could make important contributions toward the mobilization of the forces necessary to bring about desirable changes in educational practices. They could achieve this role by dedicating themselves to research, development, and dissemination related to educational innovation. For example, they could take many of the basic research ideas developed in universities and test them out under well controlled conditions in realistic school situations. They could provide opportunities for student teachers, experienced teachers, school administrators and others to study and discuss on-going research and development work and thereby serve the vital functions of demonstration and dissemination. In this way it should be possible to reduce the considerable time lag which exists between the development of educational innovations and their use in public school operations.

Specific Needs Which Could Be Served by Research-centered Schools

General Educational Research

As Bixby and Mitzel point out in Chapter IV of this report, there is an urgent need for more and better educational research, and research-centered schools could provide the situations and student populations that are needed in order that such studies can be conducted under realistic conditions, and in circumstances where adequate experimental controls can be exercised.

Bixby and Mitzel list a number of problem areas where such research is needed. These include: studies of teacher-pupil classroom interaction, studies of teaching strategies, studies of learner differences, studies of effects of the physical environment on learning efficiency, studies of the practicum called student teaching, studies of new curriculum developments and studies related to the introduction and acceptance of educational innovations. To this list may be added the need for studies of all kinds of instructional media in relationship to different learning situations and varied teaching objectives.

The next section of this chapter will consider some of the research needs with respect to the newer educational media that could be served by a research-centered school.

Research on Educational Media

Two of the most noteworthy current trends in educational innovation which can be expected to expand and develop in the future are the increasing emphasis on variability in learning situations and the increasing use of newer educational media.

These two trends are to a large extent interrelated and their development has undoubtedly been stimulated by the necessity for taking steps to cope with mounting enrollments and with a relative shortage of well qualified teachers. However, research in these areas is also opening up possibilities for improving student learning, for making better use of both human teaching resources and physical facilities, and for preparing students to acquire, effectively, new knowledge throughout their lifetimes. This latter possibility may be achieved by providing pupils with the varied kinds of learning situations which they will encounter in later life. "Learning to learn" under these varied conditions will increase the possibilities of transfer to real life situations in the non-school world.

These learning situations to which our children may be exposed include, at one end of the scale, increased emphasis on independent study and individualized instruction, with team teaching and large group instruction through the use of television and films at the other end of the scale. In between are many possible variations in group size and kinds of learning activities.

The growing diversity of learning situations involves increased use of a broad range of instructional resources and media, with the role of the teacher being changed in many instances from that of a communicator of information, to that of an organizer of instructional resources and learning activities. Today's teacher is also increasingly becoming a guide and stimulator to assist students individually and in groups to make the best possible use of varied opportunities for learning.

Some of the specific problems in instructional media which require practical research in realistic learning situations are discussed below.[4]

Needed Media Research in Which Research-centered Schools Could Play a Vital Role

Use of Combinations of Media

For too long, media have been regarded as minor aids to teaching and learning. Research studies have shown that students can learn effectively from such media as television, programed materials, films, audio tapes, projectuals and the like. A major area needing research relates to the use of these media in appropriate combinations so that the main burden of communication rests on the media themselves.

Such studies would not only include combinations of existing media such as, for example, programed materials with television but they might include studies of the effects of the saturation of a curriculum area with the best known use of new educational methods and media.

Research on Methods of Testing Using Media

In order to organize, conduct and evaluate research projects involving the newer media, it is going to be essential to develop much more thorough and complete analyses of educational objectives than has been customary in the past and to invent new and imaginative ways of testing the degree to which students are attaining these objectives. Paper-pencil tests alone are certainly inadequate to the task. However, it is possible through the use of graphic-pictorial representations to present realistic life-like situations to which learners can respond in ways not possible with verbal-written tests.[5] Further research and development on such methods of testing would be most helpful.

---

[4] See also Carpenter, C. R.; Greenhill, L. P.; Smith, W. I.; and Robinson, T. P. A Research Report on Operational Plans for Developing Educational Media Research Centers. University Park: The Pennsylvania State University, 1962.

Research on the Organizing and Sequencing of Instructional Resources Involving Combinations of Media, and the Recording of Learners' Responses

There is need for considerable research in the context of actual courses of instruction on the ordering of information and materials presented through the use of combinations of media of instruction, and for the recording and analysis of students' responses. The availability of large capacity computers opens up a tremendous range of possibilities for research in this area. Not only can the computer be programed to provide many different learning paths, but it can also activate a variety of informational presentation devices such as film and slide projectors, audio and video tape recorders and typewriters.

---

[5] Carpenter, C. R.; Greenhill, L. P.; et al. The Development of a Sound Motion Picture Proficiency Test. Personnel Psychology, Vol. 7, No. 4, 1954.

Kropp, R. P.; and Curtis, H. A. Experimental Analyses of the Effects of Various Modes of Item Presentation on Scores and Factorial Content of Tests Administered by Visual and Audio Visual Means. Tallahassee: Florida State University, 1963.

Schalock, H. D. and Beaird, J. H. Motion Pictures as Test Stimuli: An Application of New Media to the Prediction of Complex Behavior. Monmouth: Oregon State System of Higher Education (In Progress).

In addition, it is possible for a computer to record the responses of individual learners and the paths they take through the material to be learned. Analysis of this information can lead to revision and reprogramming of the material and in this way the learning of students can be improved and researchers can learn much about the learning processes of various kinds of learners.

It is not impractical for a research-centered school to have connections with such a computer through the use of remote terminals located in the school itself.

Field Testing of New Media Formats

One of the ways in which a research-centered school could be of considerable assistance to education would be in the field testing under realistic school conditions of new media formats.

Among comparatively recent developments in new media formats have been 8 mm concept film loops. These are usually short films (3 minutes to 5 minutes in length) each of which deals with a single cohesive concept. They can be used like building blocks in various combinations to develop more complex concepts. The feasibility of doing this on a broad scale in a practical school situation needs intensive study.

The same is true of filmed or video-taped courses. Generally, such courses feature outstanding experts in their respective fields who are able to give demonstrations with materials and equipment not available to most schools. Again, the problem is how to use such resources effectively for the stimulation of learning in the context of the school.

We can also expect to see the development of many new formats for "mass media" films and television. In general, these media as currently used, tend to be expository, with little opportunity for overt responses by learners. Formats for these media now under development include frequent requirements for active learner participation while the lesson is in progress. After the development of a concept or principle, a sequence of short problems or questions can be presented to which all learners are required to respond. Immediate reinforcement by means of knowledge of results can be given.[6]

We can expect to see the development of other new formats in the future, perhaps involving combinations of media. Again, the problem will be how to integrate them into effective teaching-learning operations.

---

[6] Carpenter, C. R. and Greenhill, L. P. Comparative Research on Methods and Media for Presenting Programed Courses in Mathematics and English. University Park: The Pennsylvania State University, 1963.

Gropper, G. L. and Lumsdaine, A. A. The Use of Student Response to Improve Televised Instruction--An Overview. Pittsburgh: American Institute for Research, 1961.

Kress, G. D. and Gropper, G. L. Studies in Televised Instruction: Individualizing Group Instruction. Pittsburgh: American Institute for Research, 1964.

Field Testing of New Instructional Equipment

Manufacturers are constantly responding to educators' demands for new types of instructional equipment which will make possible the introduction of new media formats or will make it easier for students and teachers to use these media. Recent examples of such equipment developments are 8 mm cartridge loading projectors, 16 mm self-threading projectors, medium and low-cost video tape recorders, combinations of audio tape recorders and slide projectors, language laboratory apparatus, new kinds of overhead projectors, simplified television equipment and motion picture cameras, and classroom communication devices which record students' responses and provide both teacher and learners with feedback or knowledge of results. In the not too far distant future we can expect to see increased use of other equipment developments such as individual study carrels equipped with a wide range of display and response devices, new types of terminals which give students access to a computer not only for programed learning, but for a wide range of information retrieval and electronic display.[7]

All of these and similar equipment developments need to be field tested in practical learning situations in order to explore their educational potentials, to test their reliability and feasibility for regular use and to study student and teacher acceptance under varied conditions. Too little of this kind of field testing is undertaken by developers of such devices. It could be done most effectively in research-centered schools.

---

[7] Kaufman, B. and Bethune, P. Nova High Space Age School. Phi Delta Kappan, 46, Sept. 1964, pp. 9-11.

Research on the Physical Environment for Learning

Another developing area for research in which the research-centered school could play an important role relates to the physical environment for learning. All too often in the past the spaces for learning in a school have been encased in bricks and mortar along double-loaded corridors in such ways that they are, for all practical purposes, unchangeable. Thus the shape of the school determines and limits the kinds of educational programs that can be conducted in it, and this in itself becomes a strong force which operates against desirable change.

There is now much discussion in educational quarters and a number of attempts are being madeto build flexibility into school structures so that the learning environment can be changed to meet the requirements of differing learning situations, or can be changed or adapted to new needs as these develop. (See Chapter VI of this report, by Wheeler.)

There is great need for research on space arrangements, proximity and accessability of learning resources, variations in light, heat, humidity, color, seating, acoustics and so forth. These aspects of the physical environment for learning have been subjected to very little controlled research, and in general they need to be studied in a realistic school situation rather than in a university or industrial laboratory.

Research on the Economic, Logistical and Management Aspects of Instructional Methods and Media

While it is recognized that research on instructional effectiveness of media is of basic and primary importance, many studies are needed on the economic, logistical and management aspects of instructional methods and media. Although there have been a few studies of costs of televised instruction or the operation and management of a climate controlled school, for example,[8] educational researchers have tended to shy away from such problems, but if worthwhile innovations are to be accepted and put into effective use, the school administrator must have knowledge of these economic and management factors. A research-centered school would be a realistic source from which to gather pertinent information on these questions.

---

[8] Carpenter, C. R. and Greenhill, L. P. An Investigation of Closed Circuit Television for Teaching University Courses--Report No. 2, pp. 101-106. University Park: The Pennsylvania State University, 1958.

Stuart, F. and Curtis, H. A. The Pinellas County Experiment--Climate Controlled Schools. Clearwater: Pinellas County Board of Public Instruction, 1964.

Studies of the Impact of the Introduction of New Media into a School System

One of the greatest impediments to the more rapid adoption of educational innovation in schools relates to the attitudes of school principals, teachers, the students themselves and perhaps their parents as well. This is a problem that needs careful study by the social psychologist and sociologist and again the research-centered school would provide a very useful situation for such studies.[9]

The Need for Demonstration and Observational Facilities in Media Studies

Another of the needs of education is to have realistic school situations where educational innovations can be demonstrated and observed by school administrators, teachers, and others, without undue interference with the instructional program.

It is difficult to provide for these needs in most regular schools. Visitors, while usually welcome, do often disturb the learning situation and take the time of school personnel who have other important duties to perform.

A research-centered school could arrange such demonstrations and provide the facilities and personnel to make possible easy observation of the demonstration, and discussion of it with teachers and research personnel if desires. This is just one way in which the school could perform an important function in the dissemination of educational innovation.

---

[9] A Symposium on Identifying Techniques and Principles for Gaining Acceptance of Research Results of Use of Newer Media in Education. Lincoln: University of Nebraska, 1963. (Report in Progress, W. Meierhenry, principal investigator.)

Instructional Media as Tools for Educational Research and Dissemination

Many of the newer instructional media have excellent capabilities as tools for educational research. A research-centered school should make provision for their use. For example, films and television can be used to record and present patterns of stimulus materials under controlled conditions.[10] Programed materials used in conjunction with a computer offer similar possibilities.

Closed-circuit television and video tape machines can be used for the remote observation of learning activities or other experimental situations, and the activities can be recorded for later analysis and study.

The media of films and television also provide excellent channels for disseminating information about the use of media in education. They can complement and go much beyond that which can be communicated by the written word. It is regrettable that more adequate use is not made of these communication media for such purposes. Films and television which are to be used for widespread dissemination of information about educational innovation should be of good technical quality and in all probability would not be produced by the staff of the research-centered school, but by arrangement with suitably staffed and equipped organizations which specialize in the production of filmed or televised research reports.

---

[10] Carpenter, C. R. Psychological Research Using Television. American Psychologist, Vol. 10, No. 10, October 1955.

Facilities for Media Research in a Research-centered School

The above list of possibilities for media research in a research-centered school is not intended, of course, to be exhaustive, but rather to suggest the kinds of needs that such schools could serve. Undoubtedly many other needs and possibilities not yet even imagined will develop in the future. The question which now arises concerns the kinds of equipment and spaces needed to make such studies possible.

Since the needs for specific research-centered schools will vary depending on the underlying philosophy of each; and since, in any event, the needs of ten or twenty years in the future will almost certainly be different from those of today, the discussion here will be in terms of general principles rather than of a specific design.

Functional Requirements for Media Research

The key idea in designing a research-centered school, especially one which will involve extensive study and use of the new media, is that it should be functional.

It is proposed, therefore, that the first step in planning a specific school building should be the development of a list of functional specifications for the facility. These should be derived from the following requirements. Basically, for learning to occur, pupils should be able to see, hear, make appropriate responses to stimulus materials, and stay mentally alert. The stimulus materials and related instructional equipment should be readily accessible to both students and teachers.

In addition, to meet present day and future trends in teaching and learning and to provide essential facilities for learning, the spaces for learning should be varied in size rather than being predominantly of a uniform size, and it should be possible to change the size of the learning spaces when this is necessary. Thus, flexibility becomes an important requirement of facilities for learning.

Physical Requirements for Learning Spaces

The above basic requirements may appear to be deceptively simple. What are some of their implications in terms of physical facilities?

Seeing. The requirement of seeing implies appropriate use and control of light. So far as interior light is concerned, it should be of a sufficient level for reading or other close-up work; display areas, including especially chalk boards, should be adequately illuminated. There may be other special lighting needs such as for stage or demonstration areas. In addition, interior lighting should be controllable. In particular, it should be possible to lower the level either by having the lights arranged on several different circuits or by using dimming equipment.

Exterior light should also be subject to control. This suggests the necessity for avoiding excessive use of glass (which may also give heating and cooling problems), and the need for provision of adequate window shades. Television and most modern film and slide projectors do not require complete darkness, but glare from sun or bright spots around the edges of poorly shaded windows can cause distracting reflections on television receivers or can seriously impair the quality of other projected images.

Projected images should be of appropriate size and location for adequate visibility by the viewers whether this be a large group or a single individual. In general, the width of the image should not be less than 1/12th of the maximum viewing distance; preferably it should be larger. The use of rear projection screens may facilitate the viewing of projected images under conditions of partial room illumination. The projected image or any other material that is to be seen by the learners should be located where the learners can actually see it with a minimum of obstruction, especially from the heads of people sitting in front of them.

Hearing. The proper hearing of audio stimulus materials in most instances implies good acoustical properties in a classroom. This requirement is frequently violated. Hard ceilings, floors and walls are the rule rather than the exception. One of the most effective solutions to the acoustic problems of many learning spaces is the use of a good commercial grade of carpeting on the floor. This not only

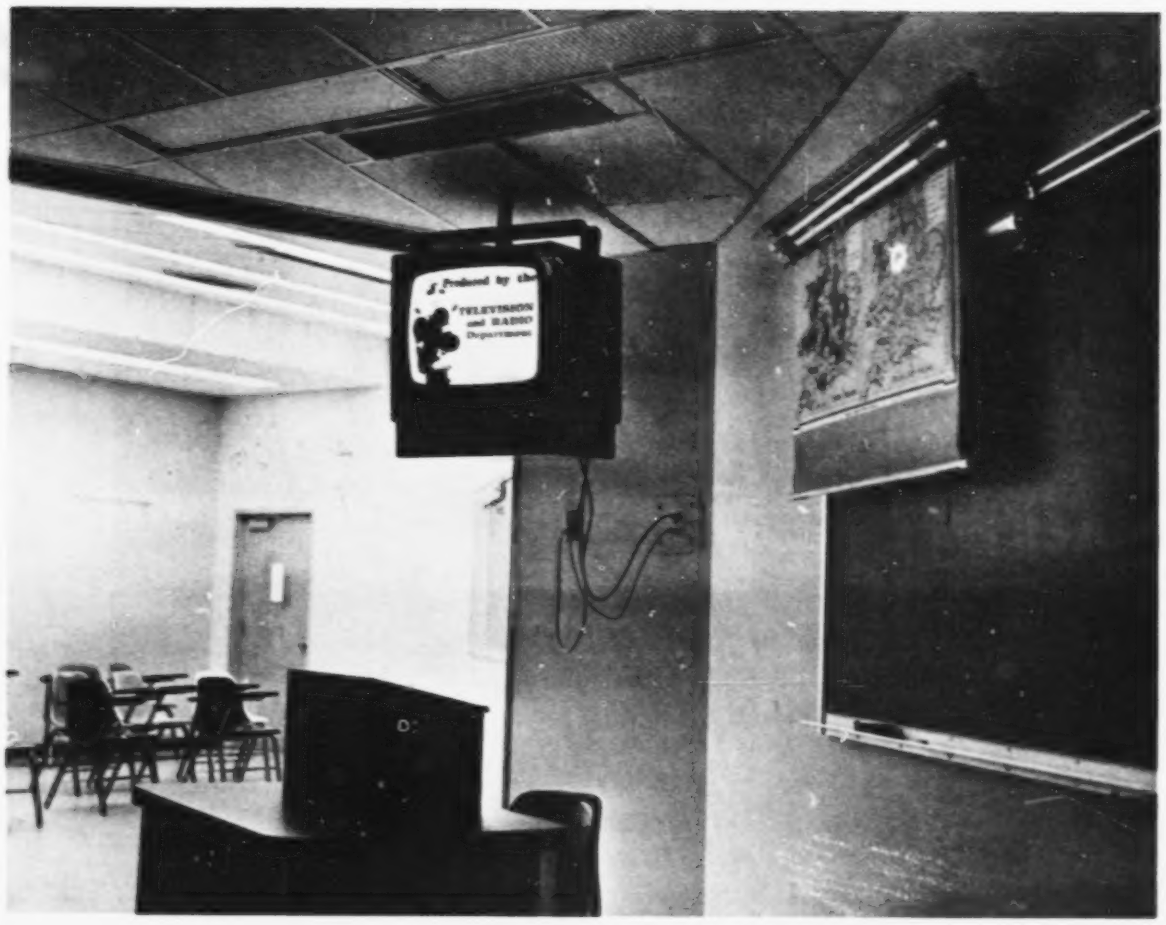

Produced by the
TELEVISION
and RADIO
Department

Figure V-1. Classroom at Florida Atlantic University showing method of mounting ceiling television monitor.

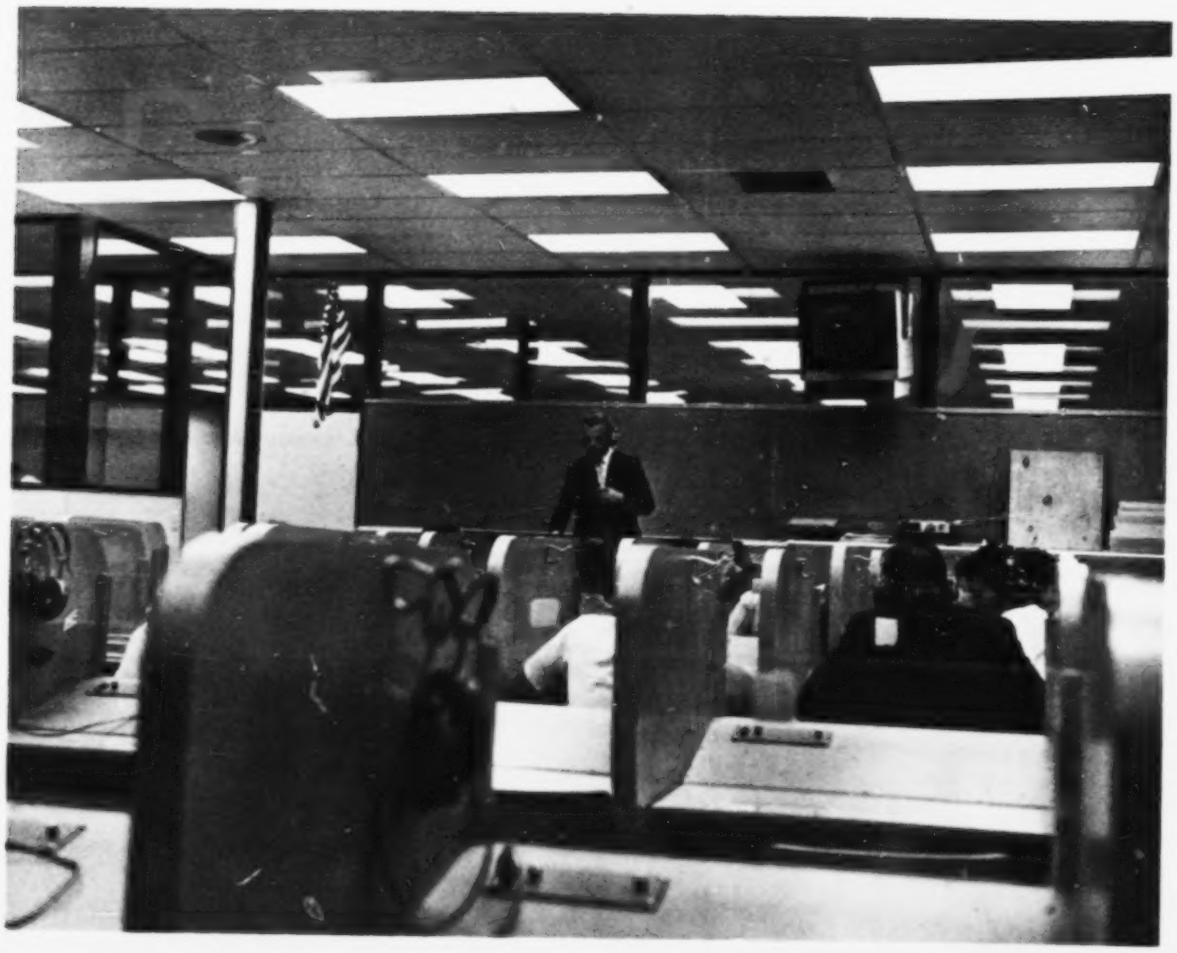


Figure V-2. Language laboratory, Nova High School, Fort Lauderdale, Florida.

has good sound absorptive qualities, but it eliminates one source of distracting noise at its source. Judicious use of acoustical tile of good quality is another partial solution.

Responding. The requirements for student responses or performances may include appropriate work surfaces (e.g., desks, work tables, tablet arm chairs, laboratory equipment), flexible seating arrangements, especially if group discussion is a part of the response situation, and again proper acoustical treatment of the learning space so that oral responses can be heard.

The research requirements may call for the use of electronic response equipment to obtain student responses which may be processed and fed back to the students and/or teacher or they may be stored for future analysis and use. Special testing facilities may also be needed to obtain data on other aspects of student responses or on the personal characteristics of learners.

Mental alertness. Mental alertness is undoubtedly a function of many factors such as the learners' motivation, physical health, sleep habits and so forth. However, mental alertness may also be related to the ventilation of learning spaces. This may be a problem of particular importance if room darkening (and blocking of window ventilation) is occasioned by the use of some instructional media.

It is suggested that air conditioning of learning spaces will become standard practice for most new school buildings in most parts of the country in the next ten years or so. In the meantime a research-centered school would be a most suitable place in which to conduct some carefully controlled research on the effects on students' learning of varying the temperature, humidity and volume of air being circulated in learning spaces.

Access to Stimulus Materials and Instructional Equipment

One of the problems faced by most schools is that learning resources and instructional equipment are not as readily accessible as they should be either to students or teachers. Libraries and laboratory facilities are often inadequate or relatively inaccessible; projection equipment, tape recorders and the materials that go with them are even less accessible. . Often one room in a school is equipped for showing films or slides and an insufficient number of projectors exist so that problems of scheduling cause teachers to forego the use of these media. New developments in individualized instruction should produce changes in this unsatisfactory state. Either the equipment and materials will be available in every classroom or in learning resource areas distributed through the building, where they may be used as needed by individuals or groups, or the materials may exist in a central library from which they can be retrieved at will and displayed for the individual or group in the classroom or other study areas by electronic means.[11]

These possible developments underline the need for adequate electrical outlets in learning areas and spaces for cables either above

---

[11] Wolfe, op. cit.

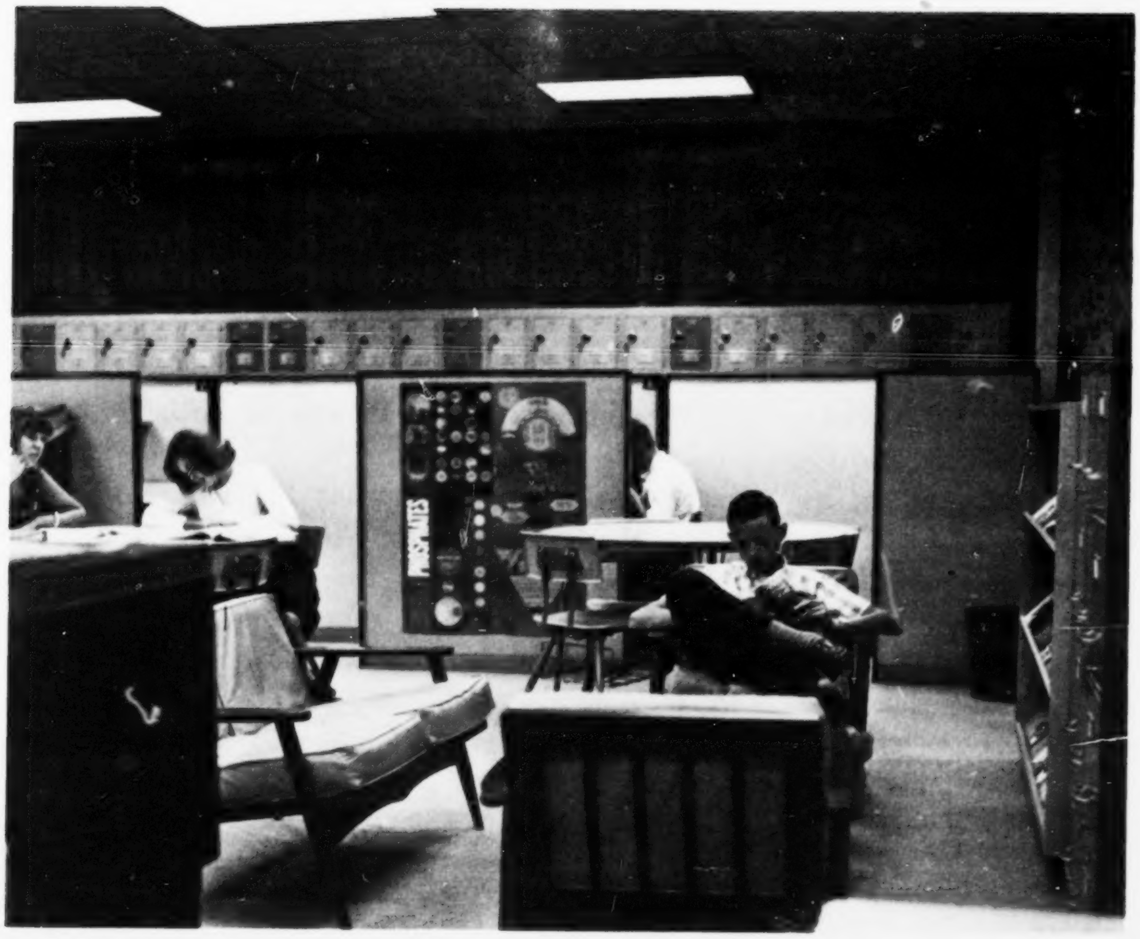


Figure V-3. Learning resources and study area, Nova High School.

the acoustical tile ceiling or in channels in the floor or both.

Furred ceilings above hallways or channels in the floors of corridors should provide cable space. and vertical chases should connect these spaces on the several floors. Electrical outlets should be provided at many points. Thus electronic or electrical equipment can be placed where it is needed and the arrangement can easily be changed to meet future needs.

Flexibility of Learning Spaces

Some learning activities require spaces for students to work individually or in small groups; other learning activities can probably be conducted most efficiently in medium size or large groups. In any event, it would appear to be desirable for students to learn under a variety of circumstance, and for learning research to be conducted on questions of group size and composition inrelation to the subject to be learned and the characteristics of the learners. These requirements suggest the necessity of providing in a research-centered school spaces of various sizes for different kinds of learning activities.

Another requirement is probably essential. That is, in the course of time, the size and shape of these spaces will need to be modified to meet new research and learning needs. Thus, some provision should be made for the use of easily movable walls with appropriate acoustical properties, or for walls of more durable materials which can be torn down and relocated at some future time if and when this is necessary.

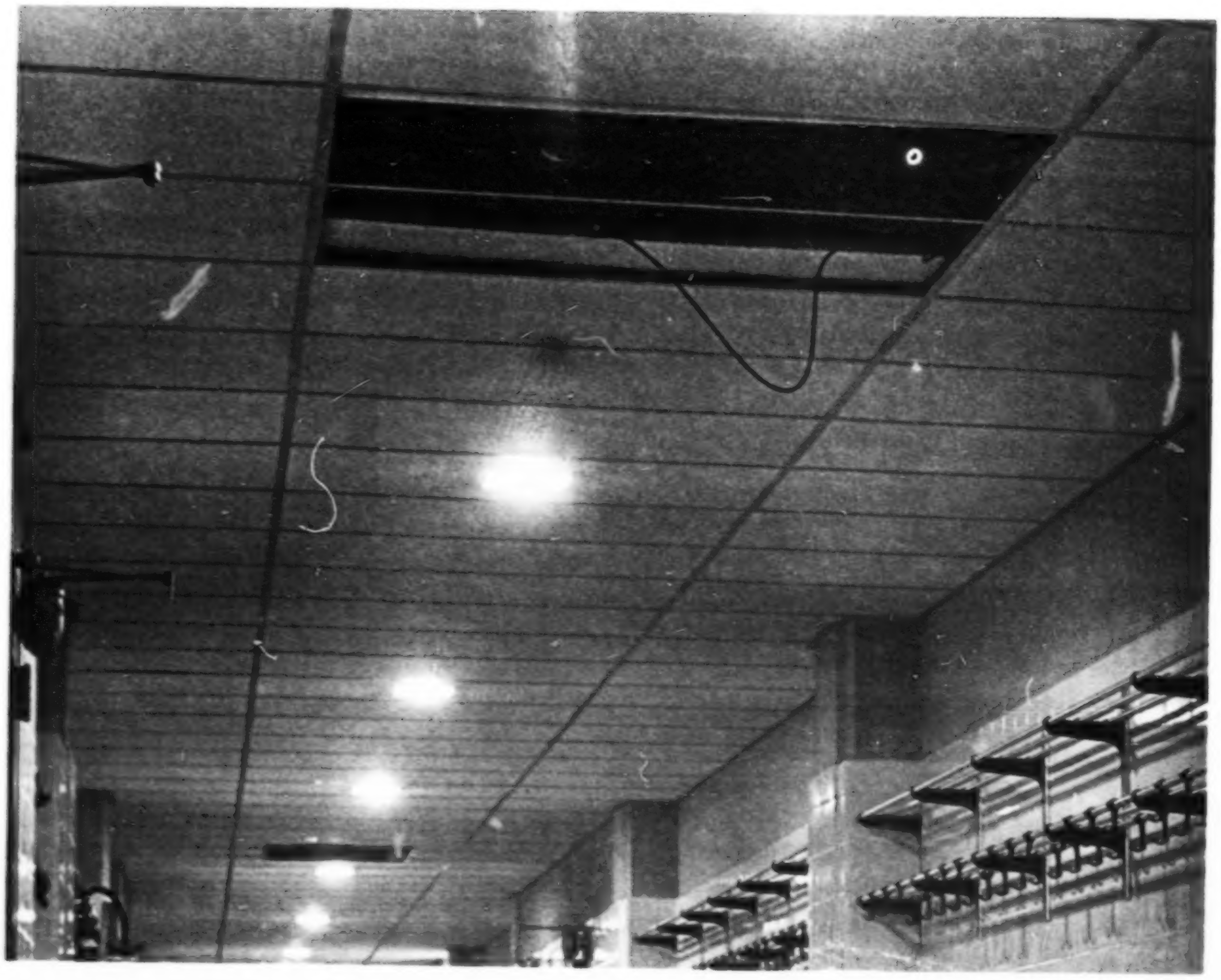


Figure V-4. Removable acoustical ceiling tile showing space for coaxial cables and other utilities at The Pennsylvania State University.

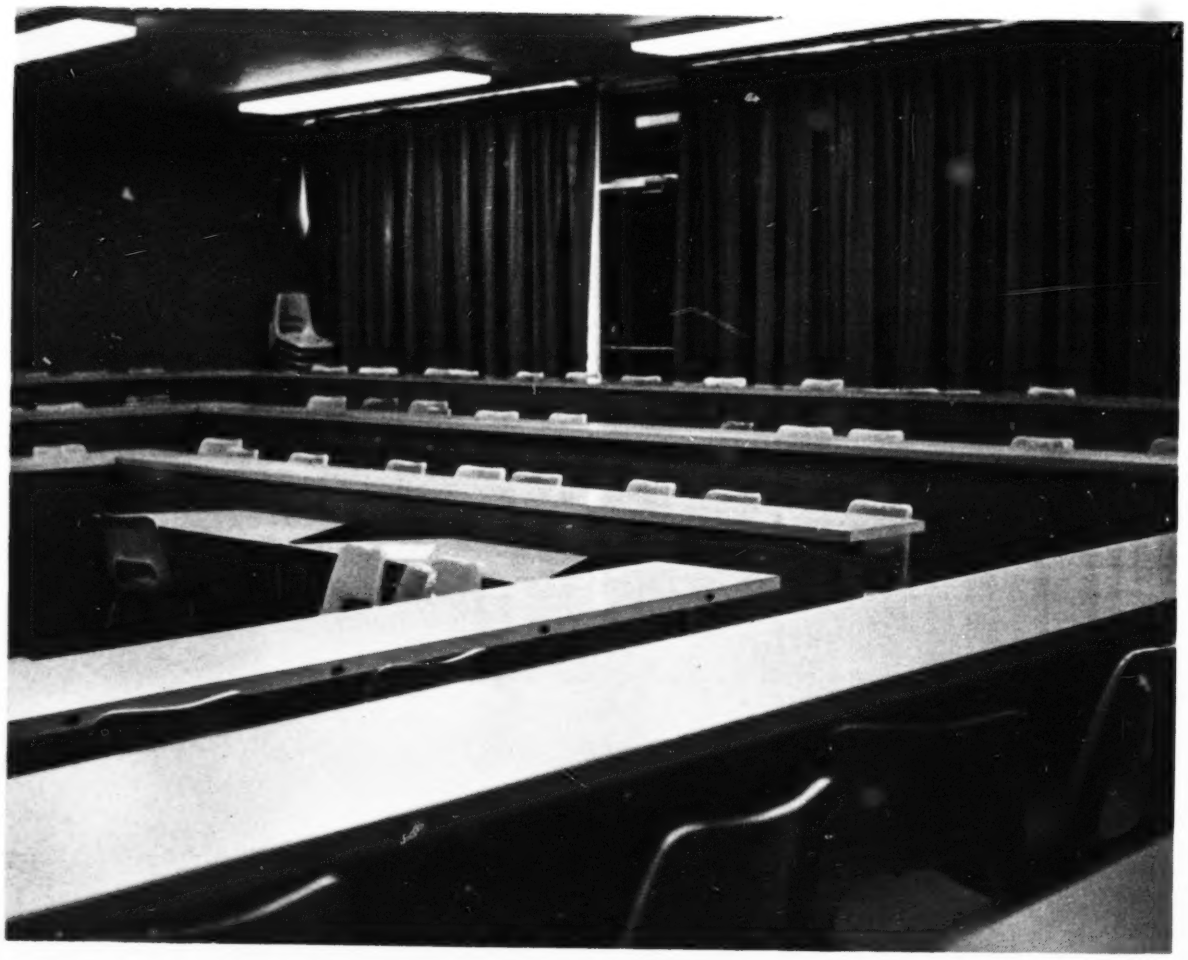


Figure V-5. Classroom for large-group instruction, Syosset High School, Syosset, New York.

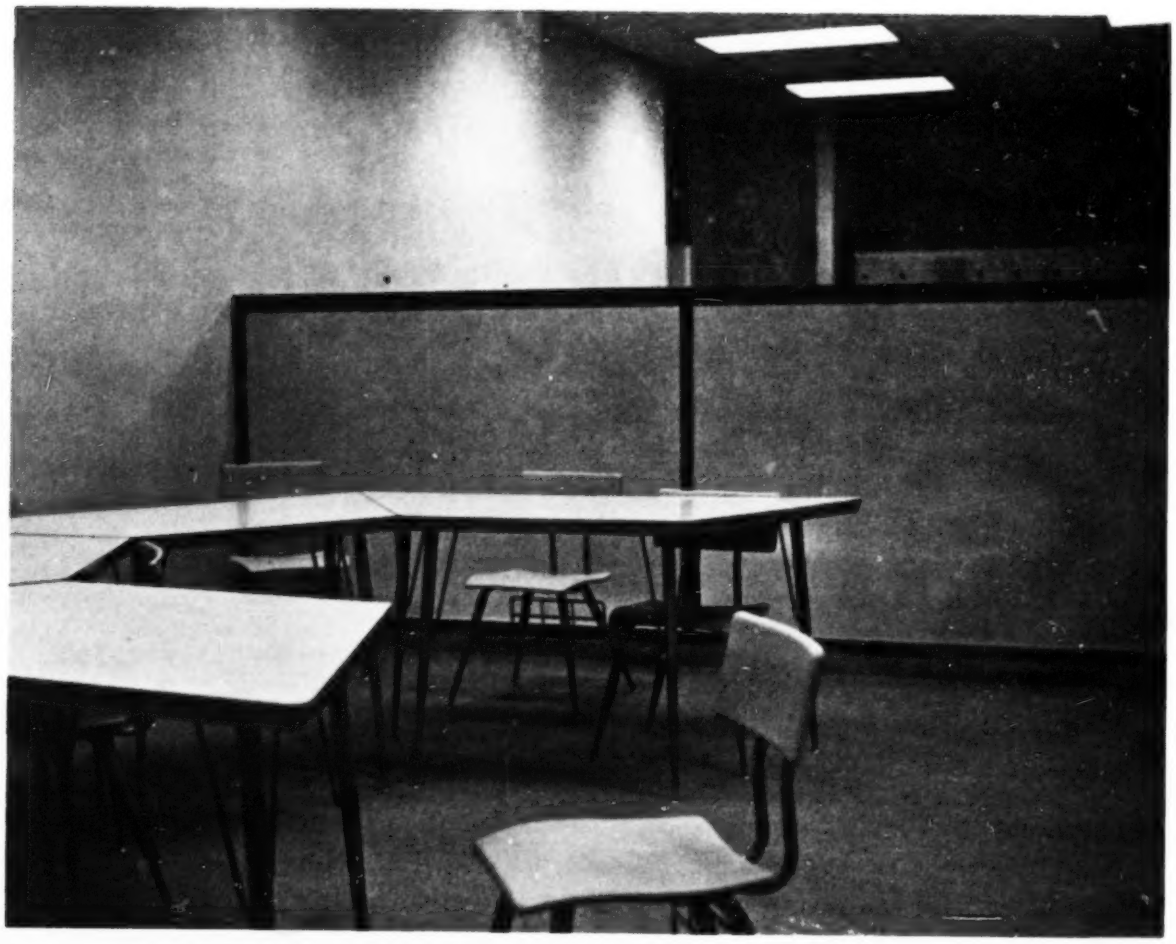


Figure V-6. Area for small group instruction, Nova High School.

In planning such flexible spaces, careful consideration should be given to traffic flow and the relation of the instructional areas to administrative and research offices.

Instructional Equipment for Use in a Research-centered School

A research-centered school which has as its main objectives the conducting of research, development and dissemination of educational innovations with appropriate emphasis on the newer instructional media, ought in its planning to make provision for the use of a wide variety of instructional equipment.

The equipment available for instructional use might include:

Television

Television cameras should be available in certain classrooms or laboratory areas where they can be used to magnify demonstrations or show phenomena under the microscope. A small television studio (22 x 25 feet) and control room would make it possible to originate certain kinds of televised instruction and to produce audio recordings. One or more video tape recorders would permit the recording of televised demonstrations or other instructional activities for reuse at subsequent times. Several television film chains would make it feasible to send films from a central control room to any classroom that has a television receiver. There should be a good television distribution system with receivers where needed. This could be used for off-air reception or for local live or video taped programs.

Learning Laboratory Equipment

Equipment of the language laboratory type should be available. This would include audio tape machines and perhaps individual television monitors or cartridge-loading film projectors. Such facilities could be used not only for language instruction, but for laboratory work in science, mathematics, speech and similar subjects. Audio-tutorial laboratories of this type are coming into increasing use. Such facilities, depending on their design, can be used either for group work or individual learners, each working on a separate topic.

Film and Slide Projectors

Projectors for slides and 16 mm and 8 mm film should be readily available in any learning area. The 16 mm projectors on mobile carts with their own rear projection screens would have many uses, as would 8 mm cartridge loading projectors for individual study situations.

Automatic slide projectors operated in conjunction with audio tape machines also have many instructional applications.

Overhead Projectors

Where learning is carried on in groups, the overhead projector used with large transparencies is a valuable teaching device. Portable projectors can be used and easily stored, or the overhead projector can be built into the teacher's desk where it is readily available for use. A suitable screen should be provided in each room where such

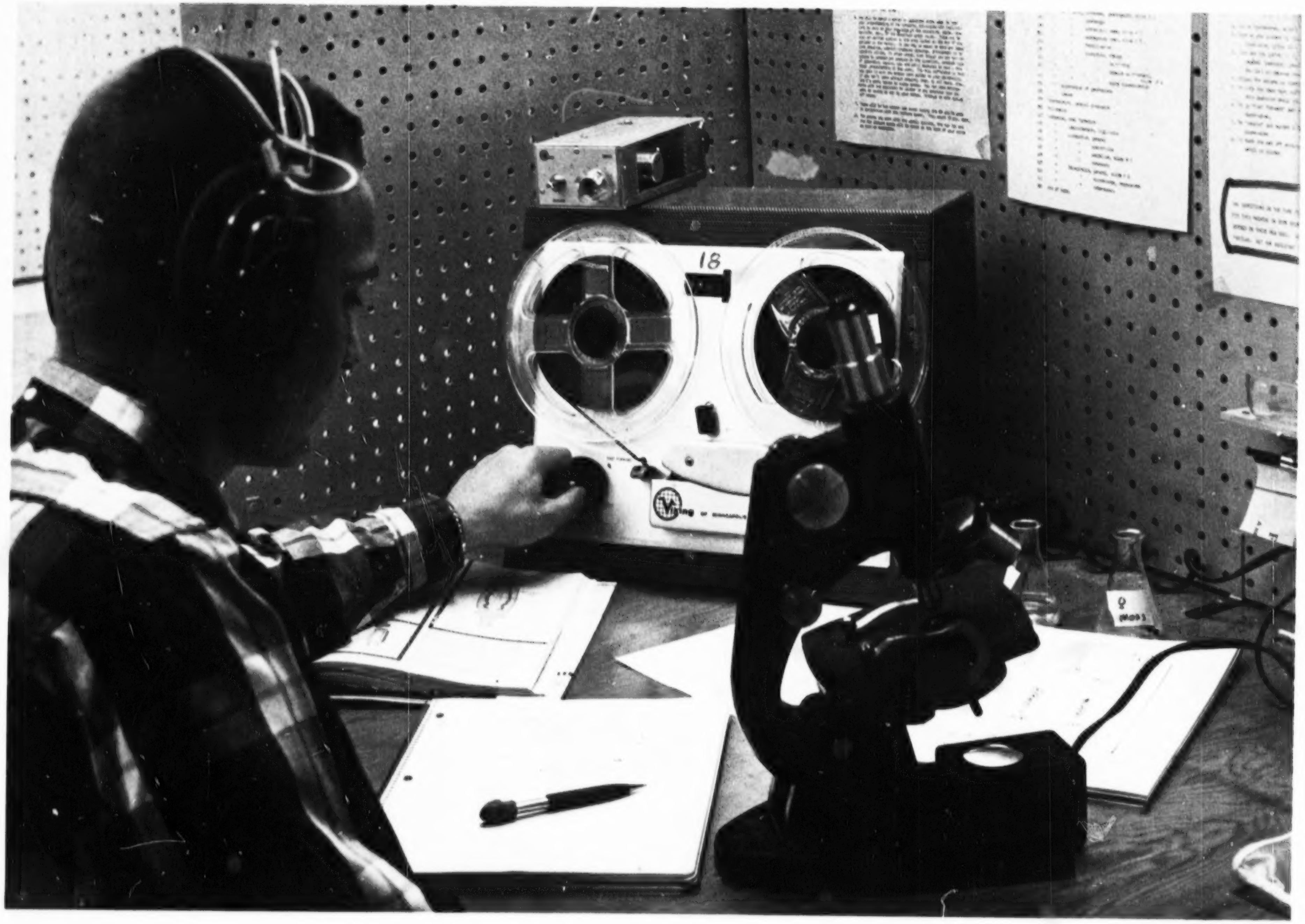


Figure V-7. Audio-tutorial laboratory used in botany courses at The Pennsylvania State University. Eight millimeter cartridge loading film projectors are also used in conjunction with audio tape, printed materials and laboratory apparatus.

projectors are to be used. The screen should be mounted in a location where it is clearly visible and where there is a minimum amount of ambient light falling on its surface. It should be tilted forward so that it is perpendicular to the axis of the projection beam.

Computer Terminals

Provision should be made for the installation of computer terminals so that research involving computer assisted instruction can be conducted. Each terminal requires a booth of about 8 x 6 feet with cable access and six to eight a.c. outlets.

Instrumented Study Carrels

Groups of carrels for individual study purposes should be located in appropriate areas in the building. These should have two-way audio connections for language and other instruction and a television display monitor on which films, video tape or other materials in a central depository could be displayed on request by the learner.

Classroom Communicator Systems

For research on some kinds of group instruction it may be desirable to have classroom communicator equipment which would include individual response stations, response recording equipment and stimulus presentation control systems. With such an installation it would be possible to program audio tapes, slides, films, and to present questions to which learners would respond by pushing buttons. Knowledge of results could be provided and the learners' responses

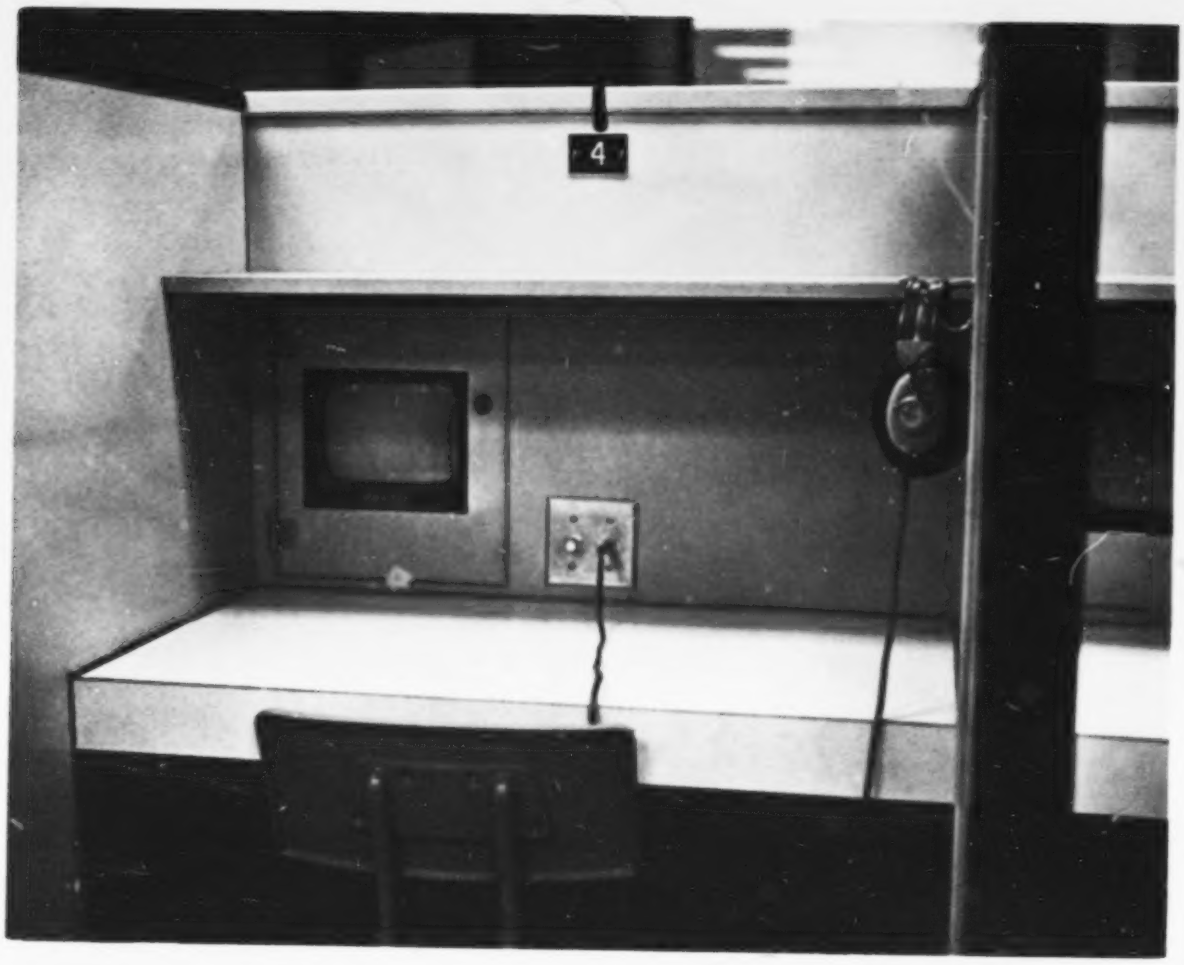


Figure V-8. Individual study carrel with video and audio presentations available on demand, Nova High School.

recorded. Such equipment would require cable connections through floor ducts to each response station. It is possible, however, that future devices of this kind may use radio communication principles.

Microfilm and Card Readers

Learning resource centers in the school should make provision for the storage, retrieval and display of information on microfilm or microcards.

Laboratory Apparatus

In addition to the usual equipment found in science laboratories, there is a place for 8 mm film projectors, television, and for microprojectors for teaching laboratory techniques and showing a wide variety of phenomena.

Audio Systems

In addition to audio systems for learning laboratory use, high fidelity systems (possibly stereo) may be desirable for use in conjunction with instruction in music or other subjects where most of the stimulus materials can be presented by means of the audio channel. Such a system might, for example, be tied in with long-distance telephone lines to bring outside resources into the classroom in a way not otherwise possible.

The above list of instructional equipment is not intended to be exhaustive and, in any event, new devices not yet invented will certainly

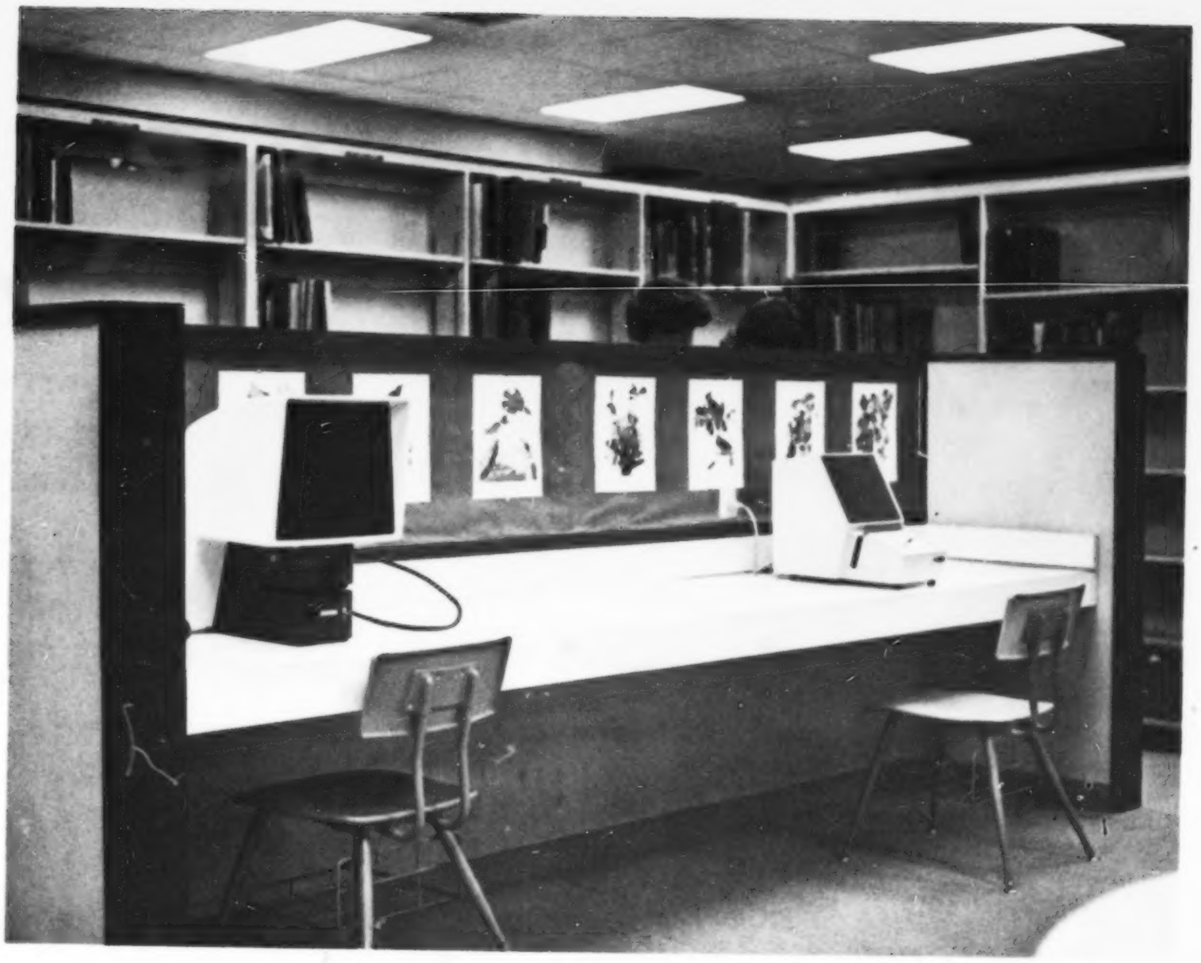


Figure V-9. Learning resources area with microfilm and microcard readers at Nova High School.

become available and it should be possible to use them if the physical facilities of the building are designed with the necessary capabilities and flexibility.

In addition to equipment for use in the classrooms, it will undoubtedly be necessary and desirable to have equipment and facilities for making locally produced instructional materials. This may include copy cameras for making slides, equipment for making projectuals for the overhead projector, movie and still cameras, audio tape recorders for producing good quality tapes, mimeograph machines and the like. The point to be noted is that it is becoming increasingly easy to use such equipment and hence more practical for schools to make their own instructional materials when this is desirable.

Instructional equipment of all kinds needs maintenance. Some of this maintenance can be and probably must be done locally in a research-centered school. Thus, some maintenance space, test equipment and tools should be provided as close as possible to the point of use.

In staffing a research-centered school of the kind discussed here, provision should be made to have appropriate technical staff to operate and maintain the instructional equipment.

Facilities for Demonstration, Observation, and Dissemination

If the research-centered school is to fulfill its role of providing a situation where school administrators, teachers and others can observe and discuss demonstrations and research projects involving educational innovations, it should provide the space and equipment for making this possible.

It is likely that most demonstrations of educational innovation will be done within the regularly used learning spaces of the research-centered school and provision should be made so that these activities can be observed with a minimum of interference to on-going learning activities. However, in addition to this regularly committed space, it is essential to have additional uncommitted space which can be used for a wide variety of learning activities, and where variations in space arrangements can be made easily as desired.

It would seem advisable for this to be a large room of perhaps 5,000 square feet area with a high ceiling (15-20 feet). This room could be used as an auditorium; it could be subdivided into small spaces; it could have a room or rooms built within it so that observation would be possible from all sides, or above.

In other words this kind of space would provide the ultimate in flexibility which is essential for some kinds of research.

Equipment for Demonstration and Observational Facilities

Learning activities can be observed directly by providing glass partitions between the classrooms and hallways or special observation areas. In some instances it may be desirable to use one-way vision glass so that the presence of visitors does not interfere with learning activities.

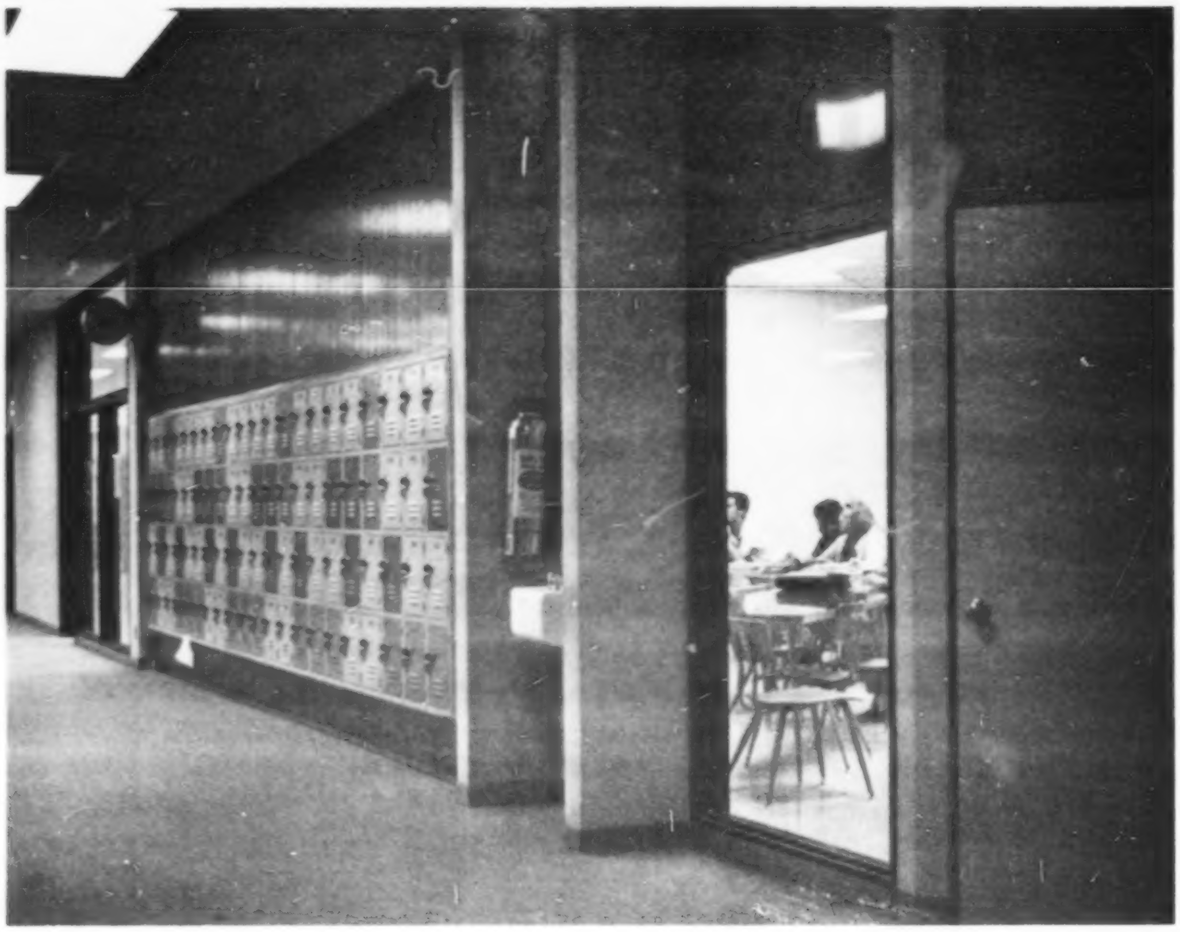


Figure V-10. Hallway showing observation window into classroom at Nova High School.

Remote observation through the use of television cameras has many advantages. Not only can visitors, student teachers and others observe with ease the activities that are being conducted in various classrooms, but it is also possible to record these activities on video tape for later review.

Provision should be made for the installation of at least four television camera pick up points in each learning area. The cameras can be plugged into these outlets as needed. The cameras themselves should be of sufficiently good quality to produce adequate video tapes. They should have remote control of pan, tilt and lens zoom. Camera and audio control equipment switching facilities to interconnect various sources and reception points and video tape recorders should be situated in a central control room of 400 square feet to 600 square feet in area. Provision should be made for viewing the televised activities at several convenient points including the conference rooms which might also be used as classrooms for student teachers.

It may be desirable to record some kinds of demonstration activities on motion picture film, especially where this medium is to be used for wide dissemination of the research and demonstration activities. This filming could be done through one-way glass or conveniently located port holes from observation areas.

Small spaces between adjacent learning areas could be provided both for direct observation and for the location of television or film cameras.

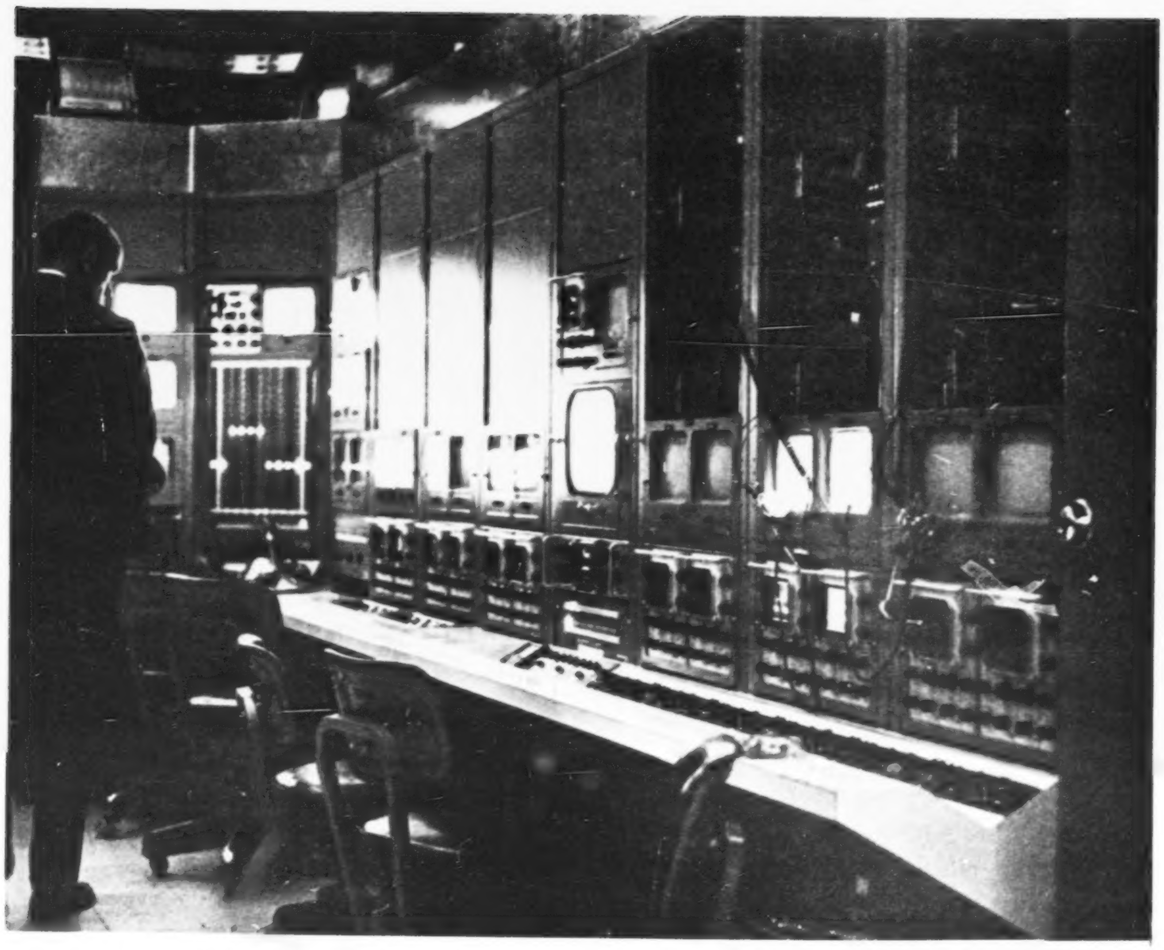


Figure V-11. Electronic switching and control center at Florida Atlantic University.

The pick up of sound always presents problems in such observational situations. The teacher can wear a wireless microphone which will afford good audio, and multiple microphones can be used in the classrooms to pick up learners' responses. This arrangement is reasonably successful for group activities if the classroom has good acoustical properties. For small group activities especially at the elementary class level, the teacher may have to carry a small hand microphone in order to pick up the spoken responses of pupils. The use of wall-to-wall carpeting is one of the most effective ways to reduce extraneous noise, to improve room acoustics and to increase the clarity and intelligibility of recorded sound.[12]

Normal, good classroom lighting of 40-50 foot candles is sufficient for televised observation, but it is essential that outside lighting be controlled to reduce glare and areas of high contrast.

General Comment

If the implications of this report are implemented, the research-centered school of the future will not resemble the typical public school or laboratory school of the present day, but it will have the facilities and equipment which will become a part of regular school operations of the future.

---

[12] The Use of Television for Improving Teacher Training and for Improving Student Teacher Performance. Phase I, Improvement of Student Teaching. Schueler, H: Gold, J.; Mitzel, H. E. Title VII, NDEA Project No. 730035. Hunter College, November 1962.

Murr, K. Television Viewing of Elementary Level Classroom Instruction, Reports I and II. University Park: The Pennsylvania State University, 1960.

Sykes, R. E. The Effectiveness of Closed-Circuit Television Observation and of Direct Observation of Children's Art Classes for Implementing Elementary Teachers' Training in Art Education. Unpublished doctoral dissertation. The Pennsylvania State University 1964.

Because of its staff, facilities and equipment it will be ideally suited to conduct much of the research, development and dissemination which education so badly needs if ways are to be discovered and used to meet the learning needs of the future.

CHAPTER VI

AN ARCHITECTURAL CONCEPT FOR LEARNING EXPERIMENTATION

C. Herbert Wheeler
Architect and
Associate Professor of Architectural Engineering
The Pennsylvania State University

PRECEDING PAGE BLANK-NOT FILMED

Introduction

This chapter represents an effort to evolve an architectural design which meets the requirements and expresses the ideas and philosophies of learning experimentation set forth in previous chapters.

A proposed scheme is offered for a complex of structures to house the college research and experimental operations and two public school system instructional units. The scheme visualizes the learning spaces, the experimental spaces and the research service spaces being interrelated for effective and efficient research operations.

The structures are designed to provide for the flexibility of research operations, for the alteration of facilities demanded by unforeseen needs, for the manipulation of space and for the complexity of new instructional media and educational processes. Above all the proposed scheme is intended to be a combination of a responsive environment which encourages learning and a sophisticated facility needed for research, especially that which seeks to understand the learning processes.

An Architectural Scheme for A Research, Development and Dissemination Center

The Concept

The concept of a college-related research, development and dissemination center in a public school setting, proposed by Bixby and

Mitzel in Chapter IV, suggests "the extension of the college and the extension of the public school system, toward each other until they overlap in their research, development and dissemination functions." Translating this concept into a building--an environment for experiments in learning--becomes the objective of the architect.

The significant architectural aspects of the concept take root in the joint administration of the research facility which is located in a public school setting. A common facility providing education to the "typical students" of a typical school district becomes the common work area for educational experimentation by researchers from both institutions. The architectural layout portrays this concept of cooperative administration and joint responsibility. The components to be housed in the proposed facility are (a) 300 elementary school students and teaching staff, (b) 300 secondary school students and teaching staff (probably a program department such as: mathematics or language), and (c) a university research staff.

General Plan

The architectural concept is portrayed by a diagram which schematically shows four major building components (see Figure 1). The core of the research center is the "experimental learning facility" consisting of a large platform of space which can be manipulated in such a way as to create one or many environments for experiments in learning. The core unit is bordered on one side by the university research offices and service areas. The secondary school wing and the

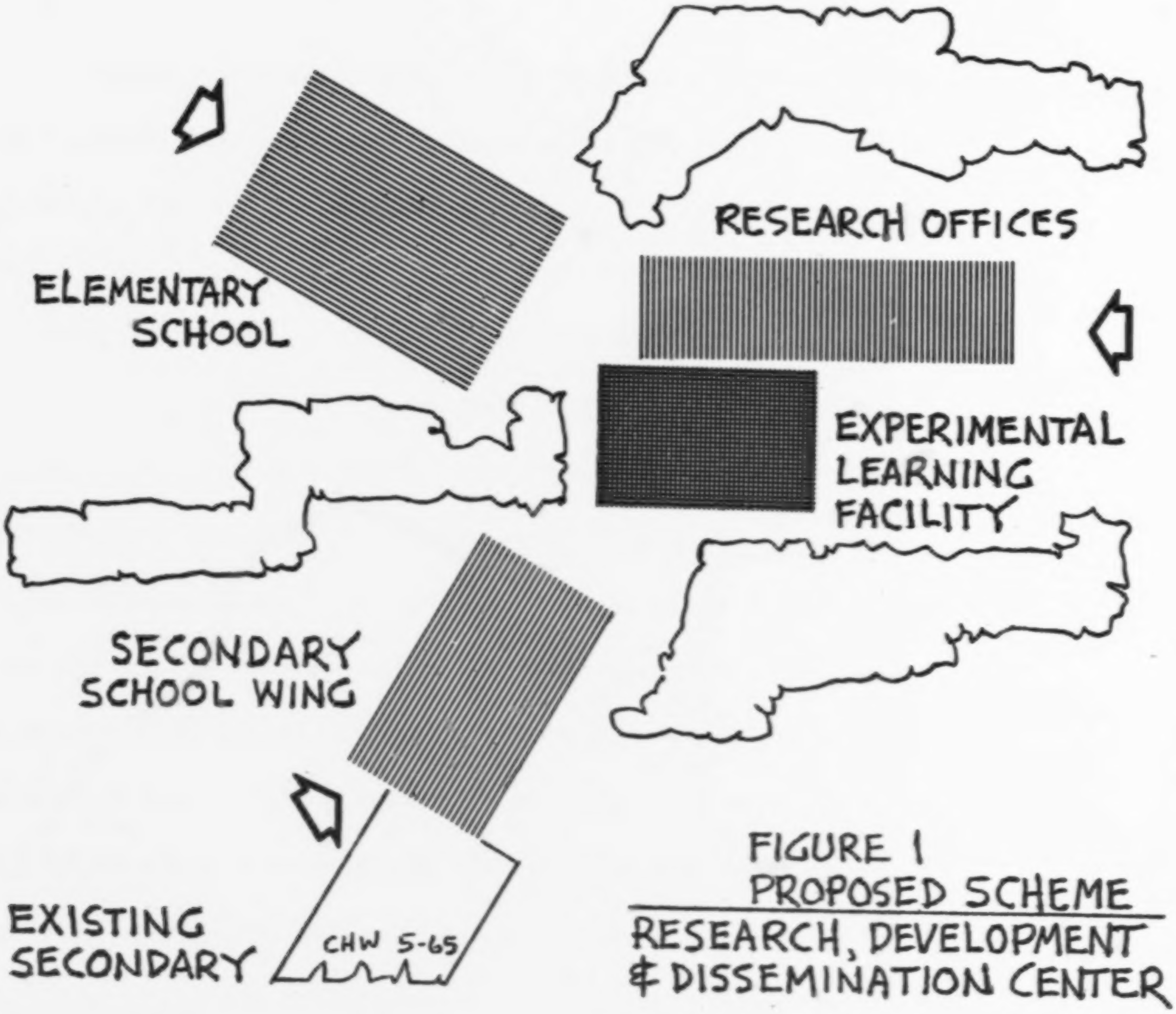

RESEARCH OFFICES
ELEMENTARY SCHOOL
EXPERIMENTAL LEARNING FACILITY
SECONDARY SCHOOL WING
EXISTING SECONDARY
CHW 5-65

FIGURE 1
PROPOSED SCHEME
RESEARCH, DEVELOPMENT & DISSEMINATION CENTER

elementary school unit stem from the core on two other sides. The general plan provides separate entrances for (a) the elementary school students, (b) the secondary school students and (c) the university research staff. Furthermore, an independent service entrance hidden from student circulation provides access to the experimental learning facility.

Schools-within-a-school Concept

To devise a method of dividing the large research complex into smaller components which are oriented quite differently in scale and in purpose, the architectural scheme follows the schools-within-a-school concept. The effective education of typical students of the public school system are not compromised by mixing students of different school ages and by mixing researchers with students. "Normalcy of learning situation" is considered the lodestar for all research and experimentation in meaningful human learning.

To achieve a normal learning situation, both the elementary school unit and the secondary school wing are separated as completely as possible, each having separate entrances, separate outside areas, separate teaching staff, separate administration and separate service areas. Each school functions self-reliantly. However, the two schools attach to the perimeter corridor of the experimental learning facility so that their students may pass from their individual school to this facility without going through another school (or building) and without mixing with students of other age groups.

University Research Facility

Two of the four major components of the proposed scheme comprise the university research facilities and staff offices.

One component--the experimental learning facility--forms the core of the center and consists of three parts, as follows:

1. Learning space platform--of 6,000 square feet which can be used

to create one or more unique spaces for learning experiments.

2. Peripheral service space--surrounds the learning space platform and consists of work spaces (a) below the floor, (b) above the ceiling and (c) around the platform walls. This space provides for movement of instructional equipment, attachment of recording equipment and adjustment of enclosure panels.
3. Experimental equipment storage and shop space--provides for storage, handling, fabrication and maintenance of instructional equipment, enclosure components and technical services.

The other component--the research offices and service areas--provides about 10,000 square feet of office space for the director, researchers, secretaries and technicians; also space for design and planning, for a learning resource center, reproduction equipment and other storage and office service areas.

Elementary School Unit

This component consists of a modern K-6 elementary school having approximately 30, 000 square feet of space for 13 classrooms, arts and craft shop, library, all-purpose room, teachers' work space, administration, rest rooms and other service areas. The design of the elementary school is based upon contemporary principles of architectural layout and planning and provision is made to move partitions and control natural light.

Secondary School Wing

This component consists of approximately 25,000 square feet of space to house a secondary school department or curriculum area (mathematics, languages, science, or art and humanities) and includes 20 classrooms, administrative offices, instructional materials center, rest rooms and other service areas necessary for a self-contained project area. The wing extends an existing secondary school and, as such, the wing is designed to harmonize with the existing building but its architecture is based on contemporary principles of layout, planning and architectural design.

Space Characteristics for Learning Experiments

What type of experimentation will be conducted in the experimental facility? What types of equipment will be required? What type of power and other services will be required? These questions arise in the minds of the designers of "space for research."

Knowing the potential of educational research--understanding its possibilities and limitations--is a prerequisite for the architect and allied designers who aim to create space which can be employed effectively to carry out the experiments. Furthermore, understanding the experimentation gives the architect foresight to (a) provide for various services, (b) allow for adequate spaces, (c) incorporate built-in equipment, and (d) design for needed flexibility.

Reference is made to Bixby and Mitzel's list of probable research areas (Chapter IV). Visualizing the proposed research in terms of space, equipment and services, is necessary in order to develop the facility, determine architectural requirements for the center and ultimately specify the features of the model.

Space needed "to study teacher-pupil interaction in the classrooms" should be changeable with regard to environmental and other physical conditions. Provisions should be made for the infinite variety of new media and communications equipment which would probably be required at one time or another during the experiments. Certainly the size, character and configuration of space should be variable to determine optimum interaction patterns.

"Studies of media integration into classroom practices" involves the use of current programed learning materials and the development of new materials. Programed texts, television, filmstrips, slides, etc., are available in some subject areas but studies would probably be carried out to discover optimum ways to articulate programed materials into instructional practice. Frequent spcae alterations and adequate service would be required to conduct the experiments which may involve computer-assisted instruction, both group and individually oriented.

Experiments would be conducted in the experimental facility on (a) "teaching strategies: which may investigate ways and means cf translating learning concepts such as reinforcement, inhibition, feedback and retention into instructional operations and (b) "learner differences" which may be established through various types of approaches or stimuli, such as: visual and spatial, verbal and conceptual, auditory and kinesthetic.

The imaginative space designer visualizes the broad degree of manipulation necessary within the experimental facility to use audio-visual equipment, to use communications equipment and to alter environments. Possible areas of experimentation include an infinite number of environmental changes to determine the effect of environment on learning efficiency. The human responses of students with special regard to sight, sound, smell, feel, and other human senses can be studied in controlled experiments to determine the effect of lighting, acoustics, color, seating comfort, etc., on learning efficiency.

Concept of a Stage Production

As we think of planning experiments, of setting up the space for learning activities, of creating the desired environment, of assembling the required equipment, of bringing in services (power and communication), of monitoring an experiment, of recording an experiment--we begin to visualize a production, not unlike a television or a theatrical production, having no end of needs for props, scenery, lighting and other services.

Why shouldn't the experiment be treated like a stage production? Why shouldn't we think of extra high stage areas for movement and storage of scenery, of lighting and other equipment to create environmental effects or psychological moods, of wide access spaces behind scenery to store equipment between scenes?

Why shouldn't we imagine the possibilities of having the entire experiment recorded audio-visually, a la Hollywood? After all the educational experimenter can learn a great deal from movie production in its present advanced state of development as an effective means of communication.. Continuing to roam for precedents, why shouldn't we learn from the television industry the great flexibility which has been built into the TV production studio?

The concept of erecting a stage--or a television studio--to meet all of the requirements of the diverse performing arts plus the additional requirements of learning experimentation seems to be within reason, technologically speaking. The only problem to overcome would be that of adaptation to educational research.

Concept of Multiple Productions

To carry on two theatrical productions on the same stage is the real challenge to the architect of the facility and to the planner of educational experiments.

Noise constitutes the primary problem. Light may be a secondary problem. Needless to say, the problems associated with staging two learning experiments (productions) in adjacent learning spaces (stages) arise because of acuteness of the human senses. The players on one stage should not be disturbed by the players on the other stage. Isolation of simultaneously conducted experiments, therefore, becomes the objective of the designer.

Architectural Plan

An architectural plan is shown in Figure 2 to provide the reader with (a) a better understanding of the overall concept and (b) a framework upon which to show the individual elements of the scheme in succeeding paragraphs. The character of the research, development and dissemination center if portrayed by a perspective in Figure 3.

General Architectural Requirements

Experimentation Incognito

Heading the list of fundamental considerations for the overall design of an experimental facility is the unusual characteristic that the student not be aware of the fact that he is participating in a research experiment. The naturalness of the setting and the normalcy of the situation are important considerations in evaluating the outcome of an experiment. Thus two prime architectural requirements are: (a) to de-emphasize architectural features which focus attention on the nature of the school and (b) to hide the "experimental props" from the student when he approaches, circulates within and occupies the research facility.

Equipment for Control of Experiments

The difference between successful and unsuccessful research often centers on the capability of the researcher to control and manipulate the varying conditions which affect his experiment. Thus, the

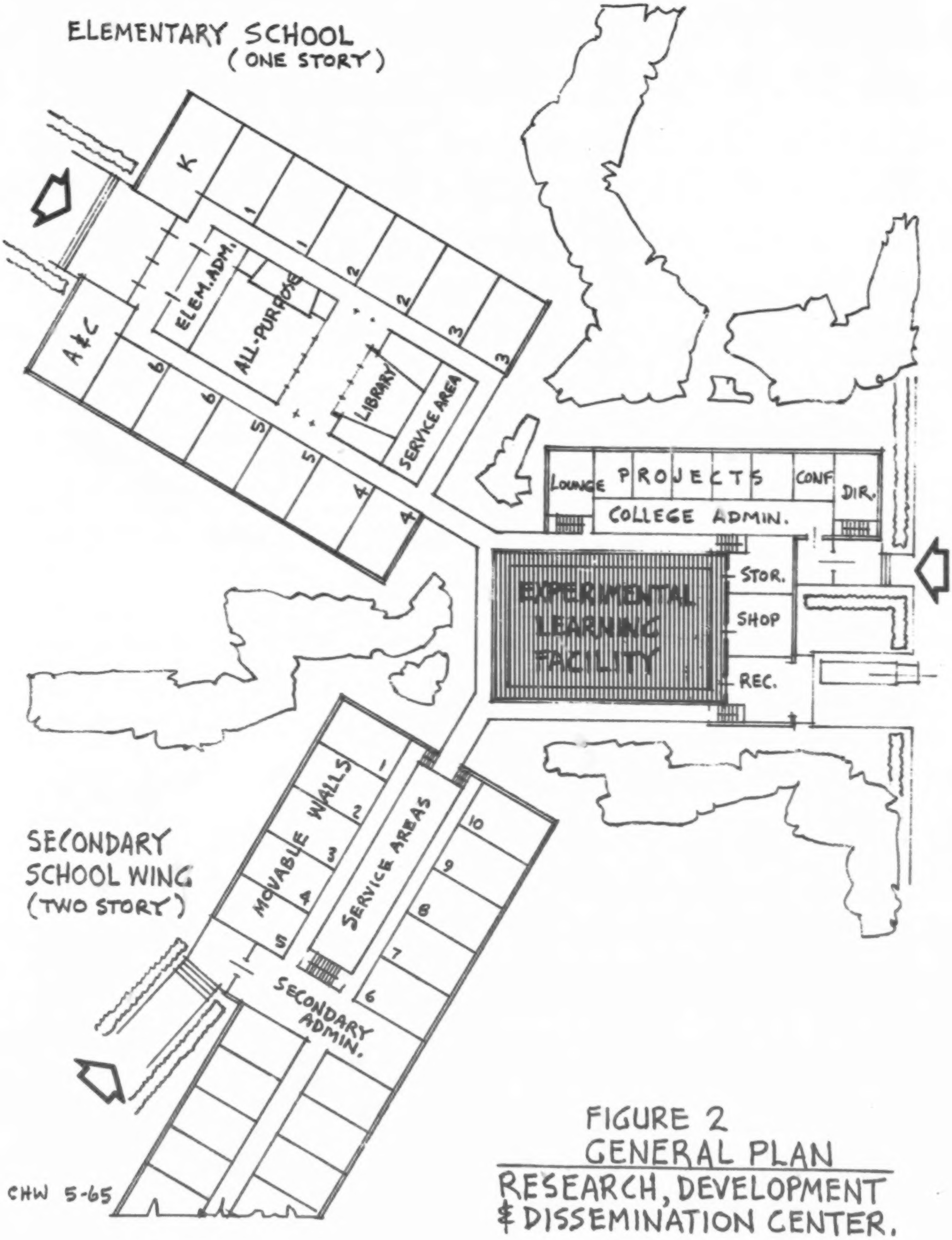

ELEMENTARY SCHOOL
(ONE STORY)
K
1
1
2
2
3
3
ELEM. ADM.
ALL-PURPOSE
LIBRARY
SERVICE AREA
A&C
6
6
5
5
4
4
LOUNGE
PROJECTS
CONF
DIR.
COLLEGE ADMIN.
EXPERIMENTAL LEARNING FACILITY
STOR.
SHOP
REC.
SECONDARY SCHOOL WING
(TWO STORY)
MOVABLE WALLS
1
2
3
4
5
SERVICE AREAS
10
9
8
7
6
SECONDARY ADMIN.
CHW 5-65

FIGURE 2
GENERAL PLAN
RESEARCH, DEVELOPMENT
& DISSEMINATION CENTER.

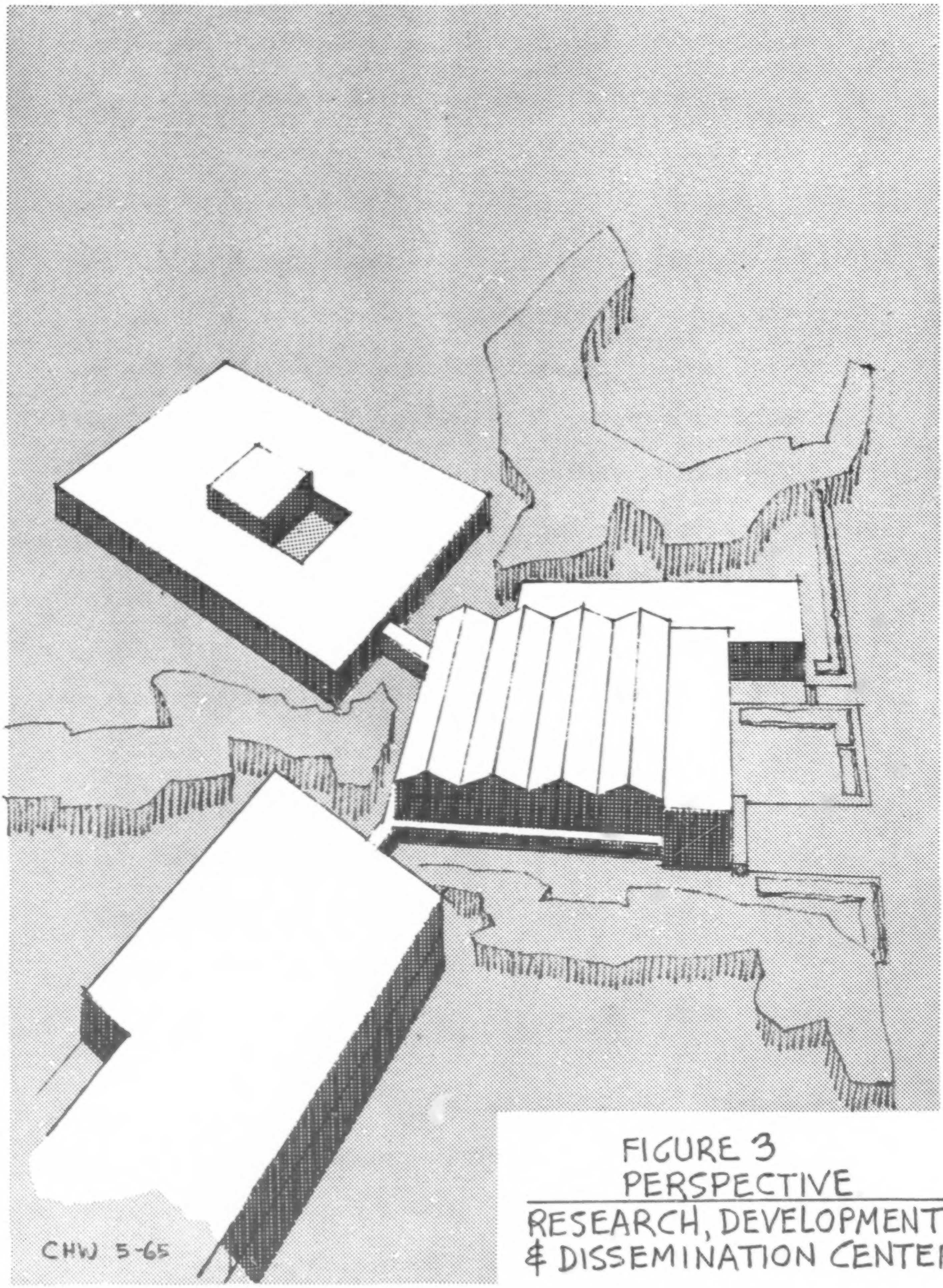


FIGURE 3
PERSPECTIVE
RESEARCH, DEVELOPMENT
& DISSEMINATION CENTER

architect builds into the design of the facility certain capabilities. One such capability exists in the recording equipment necessary (a) to know the actual environmental conditions prevalent during the experiment and (b) to record the physical and psychological aspects of the experiment itself. Another capability exists in the monitoring equipment necessary to witness and spot-evaluate the details of the learning process and the conformity of the experiment to its plan and purpose. The distraction of an unwanted sound or the effect of an overheated room may account for a change which cannot be avoided in the experiment; however, the entire experiment may still be satisfactory because the change is taken into account. Likewise a psychological fault or equipment failure, which is recorded, may explain a weakness of the experiment without voiding an entire study.

The art and science of conducting experiments in the technical and engineering fields have shown dramatically the vital importance of delicate sensing devices, electronic recording meters, monitoring equipment, such as: audiometers, psychronometers, light meters, oscilloscopes and so on.

Effect of Environment

A prime hazard in research experiments lies in the methodical coldness of the environment itself. Unless the researcher considers the vital effect of the experimental space on the student (and the teacher) being studied, the human factor of unfavorable reaction to the space enclosure and the space environment may "queer" an otherwise satisfactory study.

The degree of importance which environment plays in an experiment involving a human activity remains a mystery. More often than not, we measure environmental effects by negative means. We judge space by discomfort criteria, such as: It's too hot, too cold, too damp, too dull, too bright, too noisy. We have yet to research on environmental satisfaction from a positive viewpoint.

Although only a part of the research and experimental work is anticipated in the area of the effect of environment on learning, the hazard of the "cold" research experiment gnaws at the effectiveness of all experiments. The architect of the facility keeps in mind the effect that the environment has on the occupancy and, in this respect, the problem is to conceal the system of environmental control equipment, and the system of monitoring and recording equipment and the system of environmental enclosure panels (or props). A movable system--any system offering flexibility--usually reeks of impermanence. Positively speaking, the challenge to the designer centers on the problems of (a) the "disguise" of environment, equipment and services and (b) the subservience of the system of flexibility or changeability to the experiment itself.

Responsive Environment

A subtle but fundamental character of school building is described by a speaker at a recent conference on educational facilities who said, according to Greene, et al.[1], "however accomplished, the school should provide a 'responsive environment' encouraging learning." Another speaker at the same conference claimed that "the psychological effect of surroundings can inspire." These comments point up the fact that we expect more of a school building than to keep out the rain. The classroom, as we have known it in the past as a four-wall-plus-chalkboard cubicle, is being discarded.

Architectural Design of Space

"Architectural character" rates high on a list of "the factors governing the design of learning spaces," according to Hauf, et al.[2] Architectural character and the phsyical aspects of the enclosed learning environment are synonymous in this era. Architectural character includes the physical provisions for student-teacher interaction and for human comfort as well as for weather protection. Almost revolutionizing the architectural character of the learning space are the new instructional media and technical aids to learning. But character will always derive from the basic teaching and learning process, in the academic sense, which involves the activities of speaking, hearing, seeing and writing.

---

[1] Greene, A. C.; Koppes, W. F. and Gassman, M. C. Educational Facilities with New Media (Interim Report). Troy, New York: Rensselaer Polytechnic Institute, 1965.

[2] Hauf, H. D.; Koppes, W. F.; Greene, A. E. and Gassman, M. C. New Spaces for Learning. Troy, New York: Rensselaer Polytechnic Institute, 1961.

Shape and size of learning spaces, a second factor, are dictated by group perception, hearing and discussion needs. Projected material and seating determine optimum viewing. Lineage viewing involves maximum and minimum distances, horizontal viewing angles and even angle of elevation. The light output of projection equipment, screen types, sound accompaniment and like factors set the space configuration for various group sizes. Space illumination coordinated with projection brightness and clarity are basic functions governing student comfort, visibility, composition and even psychological aspects of the atmosphere. Background lighting, desk top lighting and lighting of instructional aids determine the quality of glare-free, non-reflective illumination.

Good hearing conditions, another factor, involve (a) the isolation of unwanted sounds being transmitted through enclosure constructions and space from without and (b) the satisfactory absorption and reflection of sound waves within the space itself. Enclosures, acoustic surface treatments, room size and configuration, sound reinforcement systems all influence the design and the use of learning spaces.

Mechanical equipment required to heat, cool and ventilate learning spaces limit the flexibility of space arrangements which are also governed by window surfaces, air leakage, thermal insulation, occupancy, heat of lighting, etc. Fixed mechanical units in walls and ceilings govern air patterns (drafts) and often the seating layouts and the placement of instructional equipment.

The last important item which governs the utilization and design of learning spaces grows in importance and complexity as instructional equipment and systems are integrated with the enclosure and the space itself. Audio-visual apparatus, communications equipment and monitoring equipment combined with instructional display surfaces, instructional equipment storage, and further combined with tables, seating and other needs of the student occupancy become controlling factors in the design of learning space--often times more restrictive in space layout than the architectural elements themselves.

Student Appeal

The design of today's learning environments considers the importance of student appeal. Considerable innovation is accruing in the area of warm, friendly surroundings for small children, of expressive wall treatments for schools, of two-level floors and curvilinear wall configurations for learning stimuli. There is no question that the learning environment of the future will have built-in or designed-in student appeal--for the age group for which the school is designed.

In this experimental facility, the problem facing the architect is to design for a broad age span--kindergarten to high school senior. The foremost implications focus attention on (a) heights of ceiling, furniture, chalkboards, visual aids, etc., and (b) character of decor and built-in instructional equipment. The imagination of the space designer is stretched to solve the problem of manipulation of scale, proportion and decor necessary to satisfy--and stimulate--the learning situation of a five-year-old one day and an eighteen-year-old the next day, or both simultaneously.

New Media

In Chapter V, Greenhill discusses the various types of media and their use in modern learning environments. He also suggests the functional needs for media in educational research and spells out the research needed in combining media, in new media formats, in testing new instructional equipment and in organizing instructional resources.

The school architect and allied designers perform one of their biggest roles in designing for media today. In the development of a learning research facility, however, the architect performs an even larger role in designing for tomorrow's media. Kinne[3] acknowledges the significant new advances in equipment design for open and closed circuit television, for film or slide showing and for audio-visual aids. He states, "the problem then is how best to provide space for the use of these new media."

Even a casual perusal of literature on the design of learning environments in this era shows that the learning environment is integrated completely with the communications media and instructional material. Guerin[4] says that "buildings today are literally being designed around instructional material centers." In fact a growing belief is evolving that learning spaces are only a part of a learning system which appears to revolve around media. Teachers now go to learning resource centers or instructional material centers (IMC) rather than the material going to the teachers. DeBernardis, et al.[5] describe the impact of IMC on elementary and secondary schools.

---

[3] Kinne, W. S., Jr. Space for Audio-Visual Large Group Instruction. Madison, Wisconsin: University Facilities Research Center, 1963.

[4] Guerin, D. V. Media's Influence on Design. Audio Visual Instruction, Feb. 1965.

Demonstration and Dissemination

The architect customarily designs space for research and experimentation for the sole convenience of the researcher. In the design and development of a college-related learning research center another function becomes important. The demonstration and dissemination function appears as a natural "follow-on" to a successful educational experiment. A repeat or several repeats of a complicated experiment solidifies the findings and, the thirst for valid educational innovation brings teachers and administrators to the apparently successful experimental facility for "demonstrations." A program of dissemination ensues.

The architectural implications appear on the surface to be slight and even superficial. However, the experimental facility now becomes a showplace. To the complex relationship of elementary school and secondary school students, their teaching staff and the university research staff are added a third group--the viewers. Like the viewers in the amphitheatre of a hospital operating room, they are not to be seen or heard. They are not to distract the experiment or the experimenters in any way.

---

[5] DeBernardis, A.; Crossman, D. M. and Miller, T. E. Media Technology and IMC Space Requirements. Audio Visual Instruction, Feb., 1965.

Architectural considerations narrow down to the problem of how to demonstrate a new learning method without influencing the procedure itself. Personal viewing requires mirrored glass panels while movie or television viewing requires cameras or lens openings in the enclosure at various points. For people viewing, passageways or catwalks in the behind-the-scene areas are necessary to permit viewers to look into the experimental space from behind the wall partitions or from above ceiling panels. Space and support facilities are necessary to adequately disguise and locate cameras and related equipment. Space is also needed to operate the viewing equipment.

Demonstration and dissemination methods thus become a touchy problem of viewer access, of space for behind-the-scenes equipment and of control of operational distractions--all of which can be architecturally solved, if adequate funds are available.

Operations

The operation of a dually-administered facility which houses such diverse groups of students, teachers, researchers and viewers stretches the imagination of the architect and planner. Many individual flow patterns are necessary for student groups. Elementary school groups should not cross paths with secondary school groups. Circulation patterns of the performers (students and teachers) should not follow the same corridors as the researchers and behind-the-scenes technicians. In addition to these considerations, the viewers should not be in the way of the operation of the experiment. Control of operations during periods or hours of experimentation requires a well-thought-out architectural plan--plus excellent control of sound.

With regard to setting up and operating experimental learning facilities, the architect visualizes the truck delivery of equipment, the removal of stored equipment, the repair and modification of equipment and so on. Each of these operations are expedited by the planning (a) for adequate spaces for storage, repai[illegible]d delivery, (b) for adequate equipment to handle and repair, and (c) for adequate power service and facilities.

Design for Change

We can be sure of nothing in the next decade or two except change itself. Harcleroad[6] says, "change is the constant of our emerging society." Historically school buildings have been designed statically on a parcel of land, to withstand predetermined climatic loads (wind, snow and rain) and to satisfy pre-established functions. In fact, it was not long ago that the finest buildings were designed on the "form follows function" theory. For instance, the power plant looked like it generated power, the manufacturing plant looked like it converted raw material into a consumer product, and the school building looked like an egg crate of self-contained classrooms.

---

[6] Harcleroad, F. Learning Resources for Colleges and Universities. Hayward: California State College at Hayward, 1964.

When functions were relatively static, architects expressed the function of space by relatively solid and stable-looking architectural forms. But now, "change" seems to be the password for this era.

"Design for change" shatters the former theories of space planning, such as: design from the inside to outside, design to express purpose, design for stability of appearance, design that molds a shell around the structure. "Design for change" adds a new dimension to space design. It dictates the development of dynamic structures; those which can grow with growing functions, those which can change with a changing function.

Versatility

In view of the changes anticipated and in full realization that experimentation in optimizing the learning processes, learning environments, and the uses of learning media has no bounds, the architect and the educational researcher visualize the "versatility" needed to carry out research experiments in a single facility. The administration of an effective research program in any one year may include team teaching experiments involving large open spaces for 100 students or a handful of students closeted in a small seminar room. On the other hand, a language class may be experimenting with a simulated electronic classroom having student-response facilities for 30 students while another experiment in individual automated study carrels is being set up in another part of the research facility.

According to Hauf, et al.,[7] "there's a desire for bulk space or zones of space versatile enough to accommodate groups of varying size, each with the proper environment if that's possible. The idealists would like to get rid of partitions. It has been said that as far as possible, the building should stay out of the way of the educational program."

Television and improved communication techniques give the educator so much versatility that class size need have no boundaries. Education may assume new proportions and school buildings, as we know them today, may no longer be necessary.

Flexibility

"We want flexibility in our schools" is the standard cry in educational circles. Hauf, et al.[8] says, "no other concept in the planning and design of educational facilities is receiving as much attention or implies such variety of meaning to different people as flexibility." Everyone favors it but few can agree as to its value, its significance or how best to achieve it. Convertible, adaptable, divisible, movable, changeable, multipurpose, all-purpose--and so on--are the terms used for architectural space, for equipment, for furniture. Flexibility is a multi-faceted term with broad implications.

---

[7] Hauf, et al., op. cit.

[8] Ibid.

"Flexibility of instructional use" is one of the important requirements governing the design of learning spaces according to Koppes, _et al._[9] Flexibility of assignment of space based on a wide variety of uses appears to be the crux of the problem. Instantaneous conversion of spaces is the dream of school administrators; dual functioning and electronic joining of space open up new approaches to solving the problem of inflexibility. "Rapid change of space sizes and configurations by virtue of movable partitions--manipulated by school maintenance crews--between class periods? or overnite?" is suggested by Chapman.[10] He also suggests "immediate flexibility achieved simply by installation of furniture and furnishings that can be moved or removed, stacked, nested, rearranged and grouped in a variety of combinations of space-within-space."

Flexibility, in the past, has been hampered by masonry partitions, concrete slab floors, exterior (weather resisting) walls, built-in heating or ventilating units, built-in air ducts, etc. Flexibility, demonstrated by the trend towards "open learning spaces" shown in EFL's series "Profiles of Significant Schools,"[11] has been hamstrung by lack of acoustic satisfaction. As a result of this trend, Fitzroy and Reid[12] "surveyed many 'acoustically bizarre' schools--open classroom schools where there is no substantial acoustic barrier between classroom units."

---

[9] Koppes, W. F.; Greene, A. C. and Gassman, M. C. Design Criteria for Learning Spaces. Troy, New York: Rensselaer Polytechnic Institute (undated).

[10] Chapman, D., Inc. Design for Educational TV. New York: Educational Facilities Laboratories, 1960.

[11] Educational Facilities Laboratories Series. Profiles of Significant Schools. New York: 1960-65.

Flexibility, in the future, will probably find new meaning as a function of educational processes rather than as a characteristic of learning spaces. The Automated Electronic Carrel developed at Florida Atlantic University and instructional closed circuit television pioneered in Washington County, Maryland[13] offer a preview of the type of flexibility which is expected via the emerging technology of communications.

Complexity Unseen

Learning space, no longer considered merely a classroom or a unit of enclosed space, implies the total learning facility which may be likened to the iceberg from an architectural viewpoint. The "responsive environment encouraging learning," mentioned above, appears to be the 1/10th of ice mass visible to the passing ship, the space where the students are located. Below the water level exists 9/10ths of the ice mass; this is like the behind-the-scenes areas, equipment, and services necessary to plan equip and operate the learning experiment.

---

[12] Fitzroy, D. and Reid, J. L. Acoustical Environment of School Buildings. Technical Report. New York: Educational Facilities Laboratories, Inc., 1963.

[13] Brish, W. M. Washington County, Closed Circuit Television Report. Washington County, Md. · Board of Education (undated).

The learning facility is an integrated system having five major components, such as:

1. Learning spaces in which students come together with media (and teachers) for the purpose of learning.
2. Learning equipment--which is stored, handled and made accessible for learning situations.
3. Production of instructional materials--which are required for particular learning situations.
4. Engineered instructional systems--which are built into the facility to facilitate communications and learning.
5. Engineered environment--which is the combination of structural, mechanical and electrical systems required to satisfactorily house the preceding four components.

Each of these sub systems are complex from a technological viewpoint. The satisfactory integration of the systems into a learning facility depends upon the cooperation between the architect and the educational researcher.

Architectural Specifications--
Experimental Learning Facility

Building-within-building Concept

Like a theatrical stage, access from above, below and to the sides and rear is important to changing settings and changing effects. It is, therefore, planned to design a building floating within a building in such a way that settings--or learning environments--can be set up to be accessible from above ceilings, below floors and behind walls. The exterior building shell is designed to withstand the climate and to resist the snow and wind loads. The structure of the exterior building shell is engineered to support the interior building and all of its materials handling equipment, electronic services, and educational equipment. (See the sketch perspective, Figure 4)

Greene, et al.,[14] describing an experimental classroom which was mocked-up in a large unoccupied section of a newly acquired university building, writes that "this space laboratory provides unparalled opportunity for study, evaluation, improvement and re-evaluation" and continues, "experimentation with any type of room in actual use has rarely been attempted." In this 100-student classroom mock-up,[15] he is searching for answers to questions like these: "What are the

---

[14] Greene, et al., op. cit.

[15] Rensselaer's Experimental Classroom--From Research to Mock-up in Three Years. Audio Visual Instruction, April 1963.

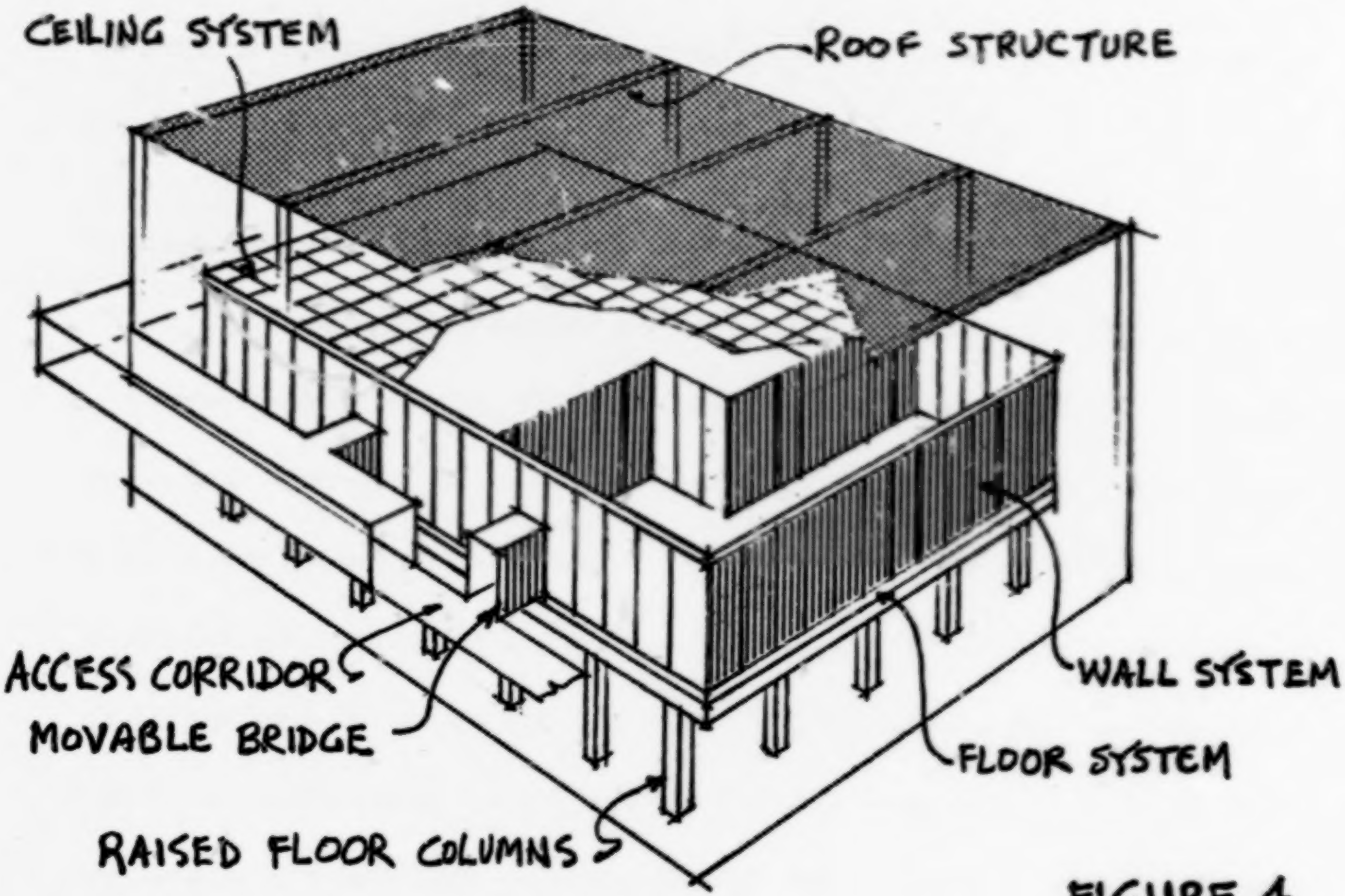

CEILING SYSTEM
ROOF STRUCTURE
ACCESS CORRIDOR
MOVABLE BRIDGE
WALL SYSTEM
FLOOR SYSTEM
RAISED FLOOR COLUMNS

FIGURE 4
SKETCH
EXPERIMENTAL LEARNING FACILITY

CHW 5-65

comparative advantages of front and rear projection? Does the acoustical design create an optimum space for hearing? What is the optimum climate for such a space?

Multiple Learning Experiments

The need for several varied experiments to be carried on simultaneously makes it desirable to plan the experimental facility so that several settings can be set up and made operable at one time. Likewise, the design of facility and selection of equipment permits the set up of experimental learning environment in the facility without distracting operating experiments. This means the control of light and sound as well as the control of the air content within the experimental facility.

Systemization of the Experimental Facility

The creation of floating environments--enclosed learning spaces--within the experimental facility requires integrated systems of floors, walls and ceilings. To correlate movable ceiling panels, movable floor panels and movable walls, the design is based upon a module or some principle governing the interrelation of parts. A modular system of ceiling panels, floor panels and wall panels permits the desired flexibility to create small or large space having high or low ceilings, having odd or conventional configurations, having flat or stepped floors. Thus a variable enclosure system is visualized as having three major sub-systems, namely: (a) a floor system, (b) a ceiling system and (c) a wall partition system. Specifications for each of these sub-systems are described below.

The schematic plan of the experimental learning facility is shown in Figure 5 as a floating modular space having infinite services access.

Greer[16] describes "an exciting new research and demonstration facility being built at the University of Arizona." He says, "the structure features a large open area which may be subdivided in any way

---

[16] Greer, J. T. Experimental Learning Center. Tucson, Ariz.: University of Arizona (undated).

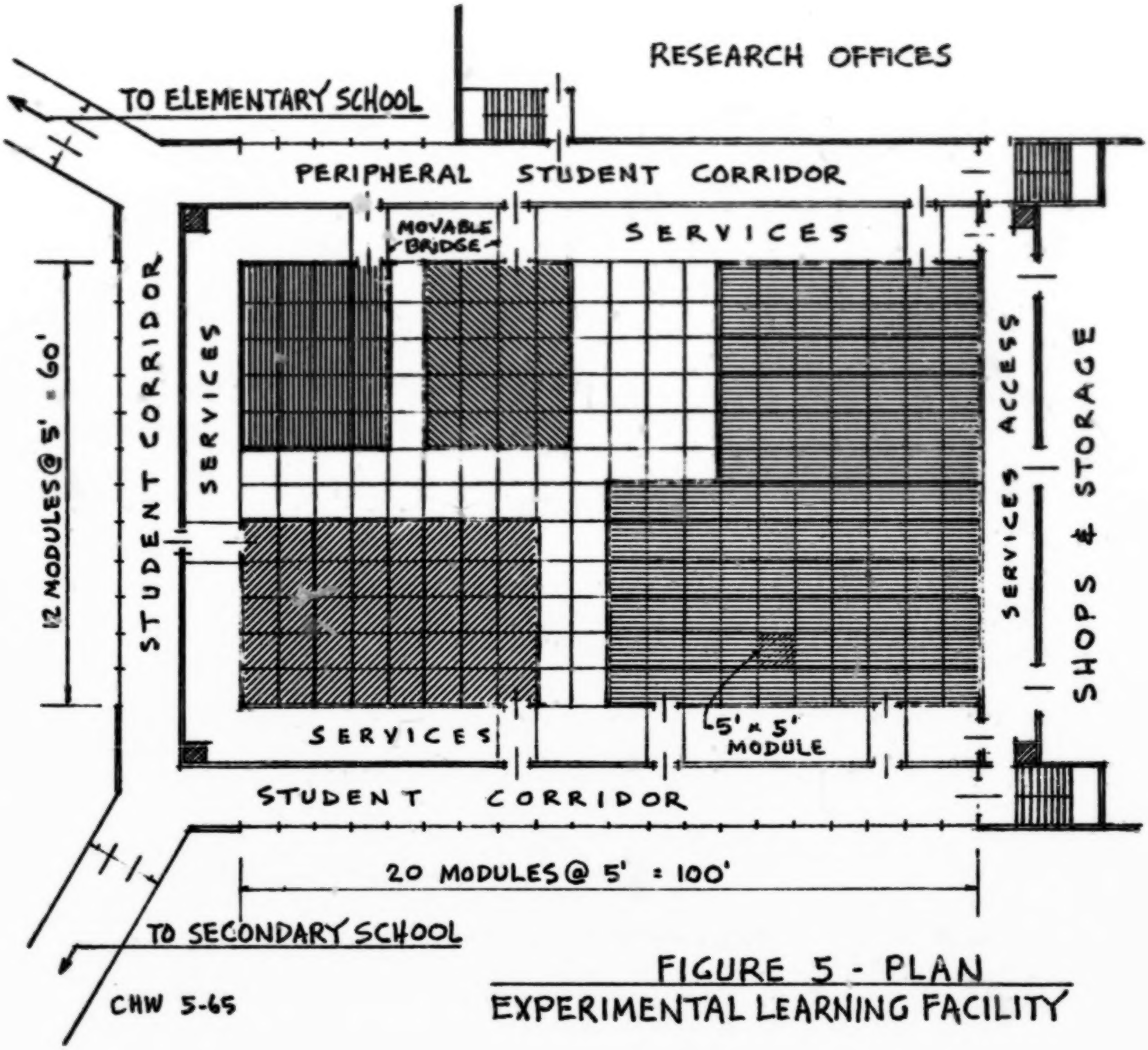
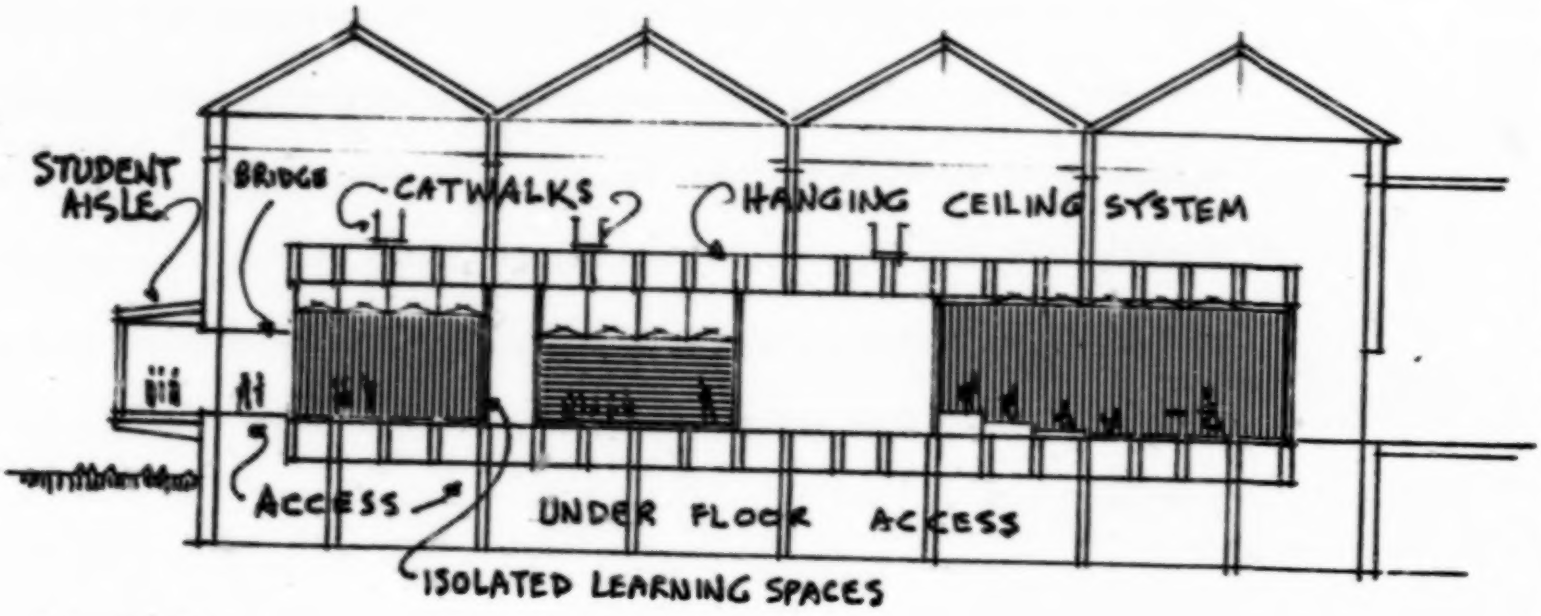

RESEARCH OFFICES
TO ELEMENTARY SCHOOL
PERIPHERAL STUDENT CORRIDOR
MOVABLE BRIDGE
SERVICES
STUDENT CORRIDOR
SERVICES
12 MODULES @ 5' = 60'
SERVICES ACCESS
SHOPS & STORAGE
5' x 5' MODULE
SERVICES
STUDENT CORRIDOR
20 MODULES @ 5' = 100'
TO SECONDARY SCHOOL
CHW 5-65

FIGURE 5 - PLAN
EXPERIMENTAL LEARNING FACILITY

through the use of movable walls and completely flexible ventilation, lighting and electrical systems." The schematic cross section shown in Figure 6 emphasizes the importance of working space above, below and around the experimental floor.


STUDENT AISLE
BRIDGE
CATWALKS
HANGING CEILING SYSTEM
ACCESS
UNDER FLOOR ACCESS
ISOLATED LEARNING SPACES

CHW 5-65

FIGURE 6
CROSS SECTION
EXPERIMENTAL LEARNING FACILITY

Basic Modules--Horizontal and Vertical

Although numerous studies have been made to date on modular systems for large size building components and many more efforts will be made in the future before a single modular dimensioning system evolves into an accepted standard, a plan module is selected by the writer arbitrarily for the purpose of further explanation of the design and development of the sub-systems. The sub-systems are based on a 5-foot by 5-foot horizontal module and a 2-foot vertical module. These modules happen to be the same modules selected by the School

Construction Systems Development Project[17] in a project which involves the development of a group of standard building components to be used on 22 separate school buildings in 13 school districts in California, costing an estimated 30 million dollars. This project involves the mass-design, mass-fabrication and mass-pruchase of standardized components and the ceiling system is coordinated with the partition system--both being interior surface components and as such are used as examples to demonstrate applicability to this concept.

Floor Sub-system

The floor sub-system is designed on the basis of an elevated modular structure having a variety of interchangeable floor panels, each 5 feet by 5 feet. The floor framing system is designed for heavy construction, probably in concrete or steel, to prevent vibration of floors and to stop the transmission of structural-borne noises. The floor framing is raised above the bottom floor sufficiently to permit a man to walk freely below the floor system and to connect any type of service (electrical, communication, electronic, piping gas and water) to the underside of the floor panels. (See diagram of floor system, Figure 7.)

The panels themselves have 5-foot by 5-foot dimensions and a variety of configurations and surfaces. As shown in the sketch the panels are set at various heights in increments of 7 inches, by the

---

[17] School Construction Systems Development (Interim Report). New York: Educational Facilities Laboratories, 1964.

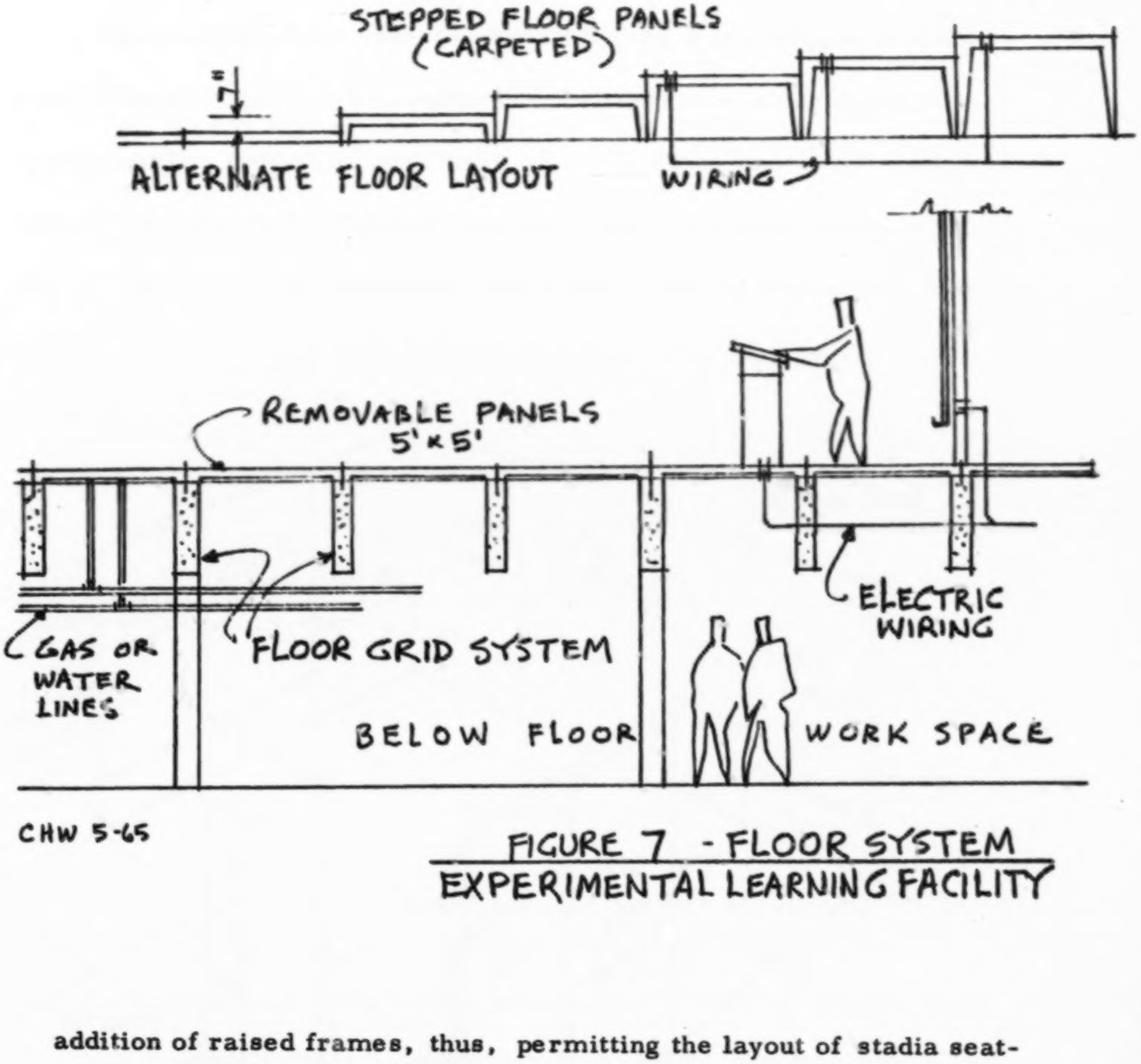

STEPPED FLOOR PANELS
(CARPETED)
ALTERNATE FLOOR LAYOUT
WIRING
REMOVABLE PANELS
5'x5'
GAS OR WATER LINES
FLOOR GRID SYSTEM
ELECTRIC WIRING
BELOW FLOOR
WORK SPACE
CHW 5-65

FIGURE 7 - FLOOR SYSTEM
EXPERIMENTAL LEARNING FACILITY

addition of raised frames, thus, permitting the layout of stadia seating. The panels are surfaced with carpeting and resilient flooring. The panels are also designed so that any type of service may be provided to the space through inserts from the space below the floor surface. Cantilever or pedestal desks are attachable to the panels thus eliminating several furniture legs and making the floor easier to clean.

Partition Sub-system

The partition sub-system shown in Figure 8 is designed to have 5 feet wide and 9 feet high movable panels which have a variety of surfaces on either side. The partitions are designed so that panels on one side of the wall can be changed independently from those on the other side of the wall. The partitions are 6 inches thick, reinforced with

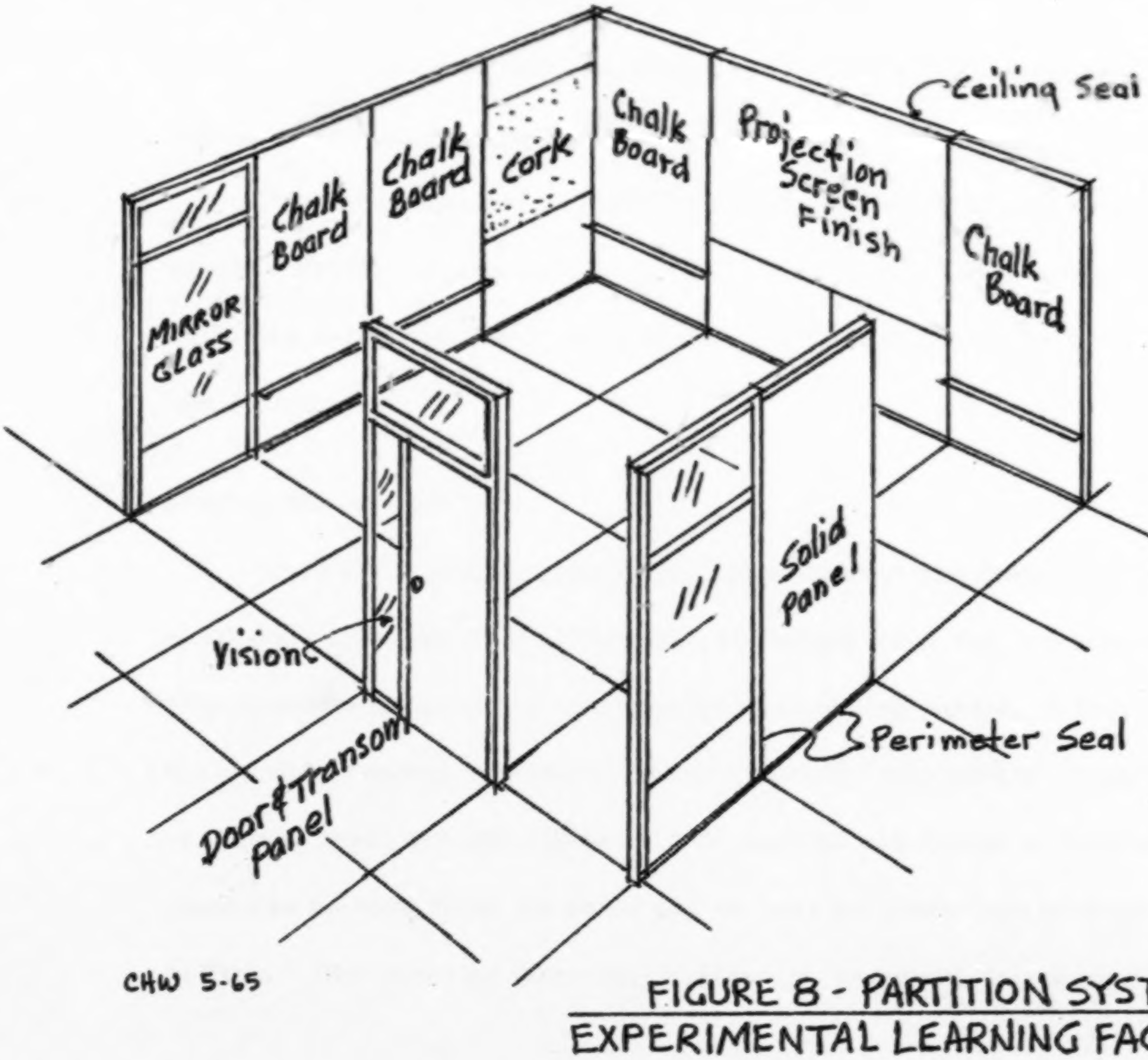

Ceiling Seal
Chalk Board
Projection Screen Finish
Cork
Chalk Board
Chalk Board
Chalk Board
MIRROR GLASS
Solid panel
Vision
Perimeter Seal
Door & Transom panel
CHW 5-65

FIGURE 8 - PARTITION SYSTEM
EXPERIMENTAL LEARNING FACILITY

perforated steel studs and framed in steel for solidity and ruggedness. The partitions are designed for electrical, electronic and communications wiring and can be temporarily filled and emptied with a weighty material (water or sand) to lessen sound transmission through the panel.

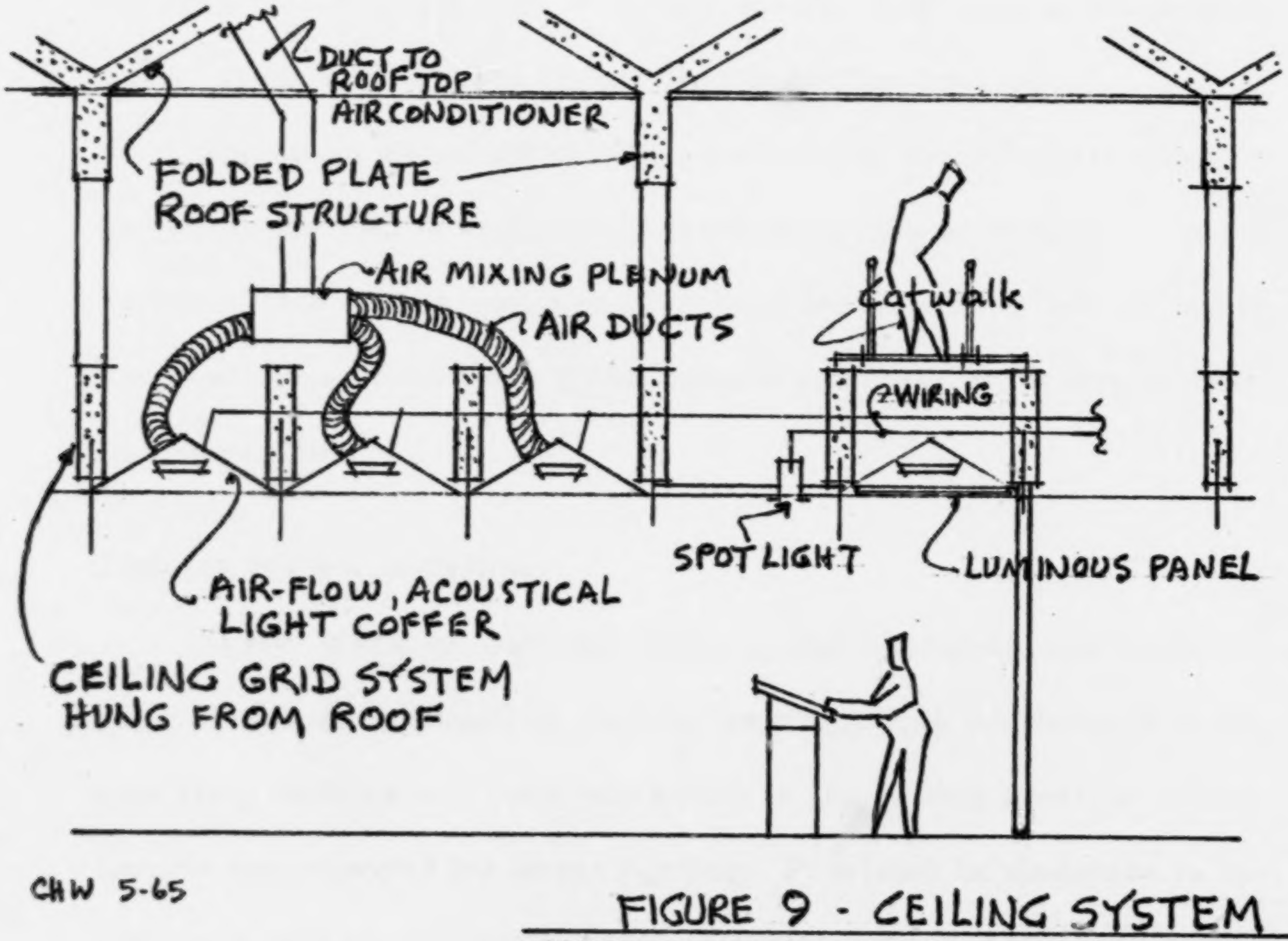
The top and bottom edges of the partitions have resilient strips which can be compressed to form a sound-tight joint. The side edges of the panels are provided with a hidden resilient joint which can also be compressed for sound tightness. The design of the top and bottom edges are coordinated with the ceiling sub-system framing and the floor sub-system framing, respectively.

Partition units are provided with door units of various types and sizes. Partitions are also provided with vertical fillers which can raise the ceiling in 2-foot increments; that is, from 9 feet to 11 feet and 13 feet.

Ceiling Sub-system

The ceiling sub-system is designed as a ceiling framing system suspended from the roof of the outer building shell. The framing system supports a variety of interchangeable ceiling panels, 5 feet by 5 feet. The framing system is heavier than the customary suspended system so that catwalks can be laid throughout and so that heavy equipment can be hung from the ceiling or be carried immediately above the ceiling. The heavier framing system is required to secure the movable partitions and to make joints between ceiling and partition reasonably sound tight.

The ceiling panels are designed to provide and control the three characteristics of the space environment--light, sound and air content. Lighting of various types (direct and indirect) and intensities are incorporated into a ceiling panel as shown in Figure 9. The ceiling panels are designed as air breathing units providing fresh, treated air to the enclosed space and also removing the stale air necessary to achieve the desired air changes. The ceiling panels are also designed


DUCT TO ROOF TOP AIRCONDITIONER
FOLDED PLATE ROOF STRUCTURE
AIR MIXING PLENUM
AIR DUCTS
Catwalk
WIRING
SPOT LIGHT
LUMINOUS PANEL
AIR-FLOW, ACOUSTICAL LIGHT COFFER
CEILING GRID SYSTEM HUNG FROM ROOF

CHW 5-65

FIGURE 9 - CEILING SYSTEM
EXPERIMENTAL LEARNING FACILITY

for sound transmission control as well as sound absorption. Optional ceiling panels are designed for use as flat, sounding-board, opaque panels or luminous panels.

The ceiling panels are connected to the roof-top air conditioning system which is laid out on a modular basis to shorten distribution lines and permit local controls for each unit. The air entering the learning environment spaces is handled to only temper the air which is already treated within the entire outer building.

Basic air treating units are provided for the entire air volume of the outer building making it possible to maintain a constant air state for the whole building combating heat loss or heat gain at the outside walls, at the roof surface and at window or door openings.

The space above the ceiling panels set at their highest position and below the roof is high enough to permit a man to service all of the panels. This access space is also used for all wiring and air ducts and is also used to suspend TV equipment and other recording or monitoring devices.

Lighting System in Ceiling

Three types of lighting--direct, semi-indirect and luminous ceiling--are all provided by varying the number of two-lamp fluorescent strip fixtures and their placement in the ceiling panel or coffer. Lenses are provided for direct lighting. Provision is also made to incorporate spot lighting within each panel or to attach same to the framing system between panels.

The ceiling panels are finished on the under side to improve light reflection. However, acoustical absorption is achieved through the substitution of perforated panels. The panels are sandwiched, having a fiberglass core between the under side surface and a steel sheet upper side. The resulting insulated steel encased sandwich provides the necessary fireproofing and sound control.

Sound Control

The ambient sound level for the experimental facility is designed to eliminate distracting noises. Therefore, power and air handling equipment is selected for noiseless operations. The service equipment (doors, materials handling devices, etc.) are designed for quiet operation, because it is intended that learning environments be set up while teaching experiments are in progress.

To lessen distracting noise during a learning experiment, the enclosure system of ceiling panels, floor panels and partition panels are designed with resilient edge joints so that they may be erected without generating noise. If structural-borne noise develops, it does not travel from panel to panel. The panels themselves are heavy to stop transmission loss and have tight joints between panels to stop sound leakage. Vibration dampening devices are used under all machinery and equipment.

Seating

An often-neglected aspect of student comfort and ease of operations is seating coordinated with writing surfaces. Koppes, et al.[18] points up problems of posture, adjustability, accessibility and the various other functional aspects of writing notes and book storage. They suggest an adjustable seat offering a "comfort versus alertness" quality yet stress the physical factors of durability, mechanical simplicity, cleanability, appearance, cost and so on.

The architectural layout of seating plays a vital role in the effectiveness of the learning space especially when the seats are coordinated with multiple media. Seat and desk relationships are critical in providing comfort, privacy and easy access.

The system of seating takes into account the seat sizes and types needed for the various age groups using the experimental facilities.

Architectural Doors, Windows and Features

Significant features of a learning space are the architectural features--doors, windows, built-in storage equipment, etc. These features give human scale, proportion, color and character to the space. They also provide the illusions necessary to psychologically change the four-walled cubicle into a learning space--a learning space custom-suited to an age group, a group size, a learning function, etc.

The design of features determines the function of the room direction of presentation and thus become integrated into the media and oftentimes merge with recording and monitoring equipment, vital to the learning experiment.

---

[18] Koppes, *et al.*, *op. cit.*

Provision for Power and Communication Service

The requirements for services are extensive, if several experiments are run simultaneously. Adequate power for lighting and equipment operation are required. Communications wiring are also required. The environmental ceiling conditioning units require power for booster cooling, booster heating, and for ventilation.

The services are planned so that power can be taken off at many points below the floor, above the ceiling and around the perimeter wall of the experimental area. Arrangements are made to feed wiring from the underfloor area or the above ceiling area--into the partitions which have switches, power outlets and communication jacks.

Provision for Monitoring and Recording Experiments

The architect considers not only all of the monitoring and recording equipment but space to conveniently use the equipment. Provision includes control and recording of humidity, temperature, sound levels, illumination levels and other environmental factors.

Provisions are made for the actual witnessing or the recording of the experiments. In some cases, mirrored glass in walls and ceilings provide close observation of the experiment which is vital to appraise an experiment and all of its aspects. Otherwise, the experiment may be watched or heard by the use of wired sound systems or TV cameras. The recording of experiments requires that the architect design provisions for taping of sound and for videotaping. Space is needed to use this equipment and to service it. Only imagination limits the possibilities of where equipment is placed to be most effective in recording experiments.

Provisions for Set-up of Learning Environment

The planning of an educational experiment which involves the use of the experimental facility considers not only the set-up of the learning environment but also its operation, supervision and removal. The experiment planning considers the performance characteristics of the space with regard to size, configuration and surface treatment of the enclosed space. Light, air conditioning and sound systems are also considered along with the educational aids, furniture and special audio-visual equipment within the room. Monitoring and recording facilities may be inside or outside of the room. The wiring and connection of all services are planned in advance.

Scheduling of the space, the enclosure units, equipment and services is also part of the management of an experiment. Planning, scheduling, set-up and operations are similar to that of a Broadway production in a theatre. Cost and ease of set-up is also a consideration in the management of an experiment.

Typical Experimental Set-ups

The experimental learning facility has limited space; however, thoughtfully planned and scheduled experiments can be conducted simultaneously. A few typical arrangements are shown in Figure 10 to demonstrate the use of space for simultaneous small and large space experiments, simultaneous elementary school and secondary school experiments, long and short-term experiments, also for individual study space, for simple and complex learning equipment needs.

Architectural Specifications--
Research Staff Offices

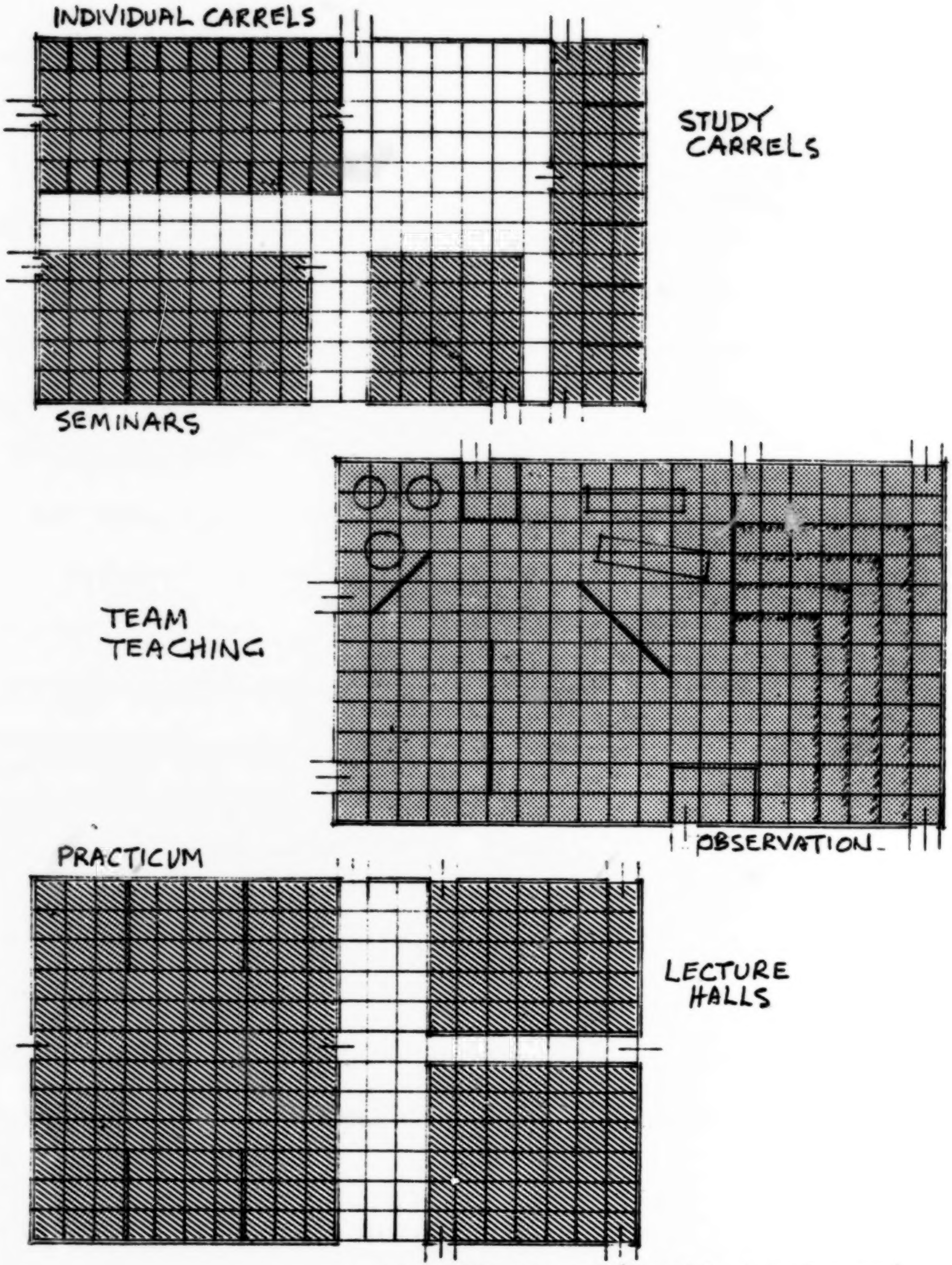
General Layout

Adjacent to the experimental facility is a two-story building providing office and work space for the research staff from a university faculty. The service units provide about 10,000 square feet of space to be used to house the researchers and administrators and are planned to have the following spaces:

(a) Director's office.

(b) Conference room for 30 people to meet and discuss experimental projects and research programs.

(c) Project offices for six teams of investigators arranged for flexibility of varying size of teams and varying amounts of space and equipment needs.


INDIVIDUAL CARRELS
STUDY CARRELS
SEMINARS
TEAM TEACHING
OBSERVATION
PRACTICUM
LECTURE HALLS

CHW 5-65

FIGURE 10 - TYPICAL LAYOUTS
EXPERIMENTAL LEARNING FACILITY

(d) Administration office for several secretaries, clerks, and administrators necessary to carry out the clerical responsibilities of the research programs.

(e) Production and reproduction facilities consisting of printing and duplicating equipment necessary on research.

(f) Design laboratory consisting of drafting tables for layout of experiments, including planning, scheduling and estimating of proposed work.

(g) Learning resource center comprised of books, periodicals, reports and library material necessary to investigate project areas.

(h) Small conference center to permit informal conferences.

(i) Rest rooms.

(j) Other service areas for communications and electronic equipment necessary to maintain a modern research office.

Office Plan

Figure 2 shows a plan of the two-floor section of the office area. A main entrance is provided for university personnel and other outsiders who may be consulting or assisting on certain learning experiments. Parking is provided for cars and direct entrance to the experimental facility by outsiders is buffered by the research staff office.

The main office floor is at the same level as the main floor of the learning environment in the experimental facility and the second floor is near the ceiling (catwalk) level of the learning spaces.

The project team offices are planned for flexibility of arrangement and convenience to the secretarial and service areas. Future needs for office space connected with future projects may spiral and, therefore, expansion and versatility are built into the space.

Functioning of Office Space

The office space is planned to serve the experimenters and, as such, is designed to be highly adaptable to their needs. Project control requires an administrative group which is familiar with budgets, estimating time, time recording, mechanical work, special designs, etc. Reproduction services facilitate the project and lessen time spent. Clerical help speeds up projects. Good telephone communication expedites the labor on a project. Storage of media, audio-visual equipment and teaching aids facilitate projects but space is necessary for proper control and care of equipment.

Learning Resources Center

Stored knowledge becomes a resource for learning experimentation and, therefore, a centralized and integrated plan for maintaining and handling these resources are provided by architectural planning.

These resources include the usual books, periodicals, reference material, documents pertaining to experimentation. Since space does not permit storage of all items which may be used, it is conceivable that the resources center will be a part of the university learning resources center. Such a connection may involve a close tie-in electronically.

The resources center, located in whole or in part in the services facility, provides programed materials (self-instructional), motion picture films, television programs (broadcast or closed circuit), radio programs, recordings (audiotape, videotape, electronic), filmstrips, microformat materials, stereographs, charts, graphs, etc.

Space provisions for the resource materials includes more than storage. Preview areas, reception and control, conference room, materials storage, equipment storage and repair, processing and distribution areas, shipping and receiving, etc., are provided to make possible a complete system of information handling. The layout would include several automated study carrels for teacher and investigator use.

Present day computer-based auto-instruction requires extensive facilities in the center and the architectural plan provides space for such facilities allowing for future developments in computers.

Materials Production Center

Here again, the facility includes a fully-equipped center to produce learning materials. It may be also tied into the university or school system facilities. If the research programs require specialized and expedited materials, provisions are made for (a) a photo studio and dark room and (b) a graphic studio and art space, both of which are part of an office, storage and distribution services unit.

Conclusion

It has been suggested that contemporary principles of planning and design be used for the elementary school unit and the secondary school wing. In the situation projected as a model by Bixby and Mitzel, these building units are designed and built at the same time as the research center units. In such an instance, the interior wall, ceiling, and floor panels should be similar to, perhaps interchangeable with, the integrated systems in the experimental learning facility. Thus uniformity of appearance is achieved throughout the total building without the higher costs of accessibility and movability which characterize the research center. In some communities colleges and school systems might decide to use existing buildings for elementary and secondary schools and build only a research center. Because the authors of Chapter IV believe the concept they recommend could be housed in any up-to-date school building plus the research center as described in this chapter, specifications about the elementary and secondary school units are appropriately left to local planners and architects.

The development of the architectural scheme parallels the development of the educational research scheme. The building complex consisting of an integrated enclosure system, services, research equipment and facilities, and instructional furnishings becomes a laboratory for learning which has the versatility of a research apparatus. It is hoped that the reader visualizes, not just a building complex, but an experimental facility providing space and equipment with unlimited possibilities for use in learning experimentation.

CHAPTER VII

THE DREAM CAN BECOME REALITY!

Bruce Brummitt
Superintendent of Schools
State College, Pennsylvania

PRECEDING PAGE BLANK-NOT FILMED

The Sacred Trust

Each school day millions of parents send millions of children to the public schools of our nation. Most of these parents believe that they are entrusting their most prized possessions to responsible and dedicated teachers and in truth they are. The law says that the school and its teachers will act in almost all ways as the child's parents away from home. The sacredness of this trust has been the subject of recent litigations.[1] In the not too distant past the teacher was assumed to be right more often than not. Her word was law, and Johnny would receive a double punishment at home for any infraction of the rules at school. Today, it is not unusual for the parent to question the judgment of the educator or to consider the school to be on its own in the area of pupil discipline. In addition to this questioning of the infallibility of the teacher and the decreasing support of the educator has been added a searching inquiry into the way in which children are taught, evaluated and classified for instructional purposes.[2] The very tools of evaluation have been challenged. Measures of intelligence have been labeled as undemocratic, and the right of school authorities to keep school records confidential has been questioned in the courts. The use of school psychologists and guidance personnel has been questioned as an unwise use of public funds.[3] There are other criticisms of our educational institutions; perhaps, many are valid; and certainly some have a grain of truth. Some sociologists believe that we have become a nation which places its youth on a pedestal of worship, while others say that it is in the American mores that the father wants his son to have everything which the father missed in his youth. Some philosophers explain in another view that America, in seeking for her goal of making every man's worth and rights paramount to the needs of society, has begun to reach maturity.

---

[1] VanAllen, Edward J. The Branded Child. New York: Reportorial Press, 1964.

[2] Johnston, Bernard. Issues in Education. Boston, Mass.: Houghton Mifflin Company, 1964.

The scene in which the present-day public school exists is unquestionably one of conflict. Whatever the explanations may be, the fact remains that our schools are the subject of a great national debate concerning their proper role in society. Whatever the true state of the dialogue may be, the administrator must project any idea of a college-community laboratory into the center of this debate.

Can the Scales Be Balanced?

The question of whether a school and a community should join in developing a research unit can be weighed as one reviews the merits of the proposition. The fact that such arrangements do and have existed over the years relieves us from a discourse of the legality of such a partnership. However, the logic of any imagined relationship must be clear. It must be capable of translation into terms which the lay citizen will understand and to which he can relate. The local Board of Education must be able to explain and defend its policy decisions in this area. Assuming that this stage can and will be set, what are the arguments for or against such a venture?

---

[3] Congressional Record, 87th Congress, Wednesday, October 10, 1962; Saturday, October 13, 1962.

Yea: Advantages, Learning Increments

The school's primary and perhaps sole purpose is to promote learning. Thus any advantages claimed for the college-community cooperative venture should be succinctly related to possible increments of learning. If we assume that catalytic motivation, a quality staff, adaptability, and adequate facilities can enhance the learning environment, the following advantages should be evident:

Motivation of staff and pupils. Teaching can become a very dull business, if it degenerates into treading the same old paths day in and day out. The child who comes to school full of questions learns by the second or third grade that there isn't time for his questions. He then learns to adjust to what may be years of boredom made palatable by extra curricular activities and a few enthusiastic teachers who somehow manage to free up their pupils in spite of a lock step environment. It may be an over-simplification to say that the teacher and pupil are waiting to be freed from boredom by the researcher. However, there are enough examples of the halo effect in human behavior research to suggest that the fun of discovery can be a powerful force in motivating teachers and pupils in the learning situation. The joy of discovery is a basic stimulus to much of the effort that spurs researchers. Why should it not also have the same effect on teachers and pupils?

Quality of staff. There has been an increasing awareness on the part of public schools that they are not adjusting rapidly enough to meet the challenges which are exploding about them each day. Those school systems which have taken leadership in becoming change-oriented, innovating, or forward-looking have attracted and seem to hold on to quality staff members. When teachers are looking for new positions, the best candidates from teacher-training institutions are often willing to wait in line and take lower salaries to be a part of such institutions. The college-community laboratory school envisioned in this report should be in the front rank of the forward-looking schools. The school system of which it is a part should then be more able to attract and hold the highest calibre of staff.

Training for change. One of the more valid criticisms of even our most forward-looking schools is that they do not successfully prepare pupils to face a changing society in which the only sure thing was yesterday and even the reality of the past is subject to re-evaluation. Brickell[4] believes that organizational and structural changes may be the answer to providing an environment in which the educational lag may be significantly reduced. He defines three primary and necessary levels of innovation: design, evaluation, and implementation. The laboratory school envisioned could perform the best of the research and development concepts as related by Brickell in his significant paper on effecting educational change in New York State. If the staff of a school is change-oriented it follows that its pupils will tend to be also change-acceptant.

---

[4] Brickell, Henry M. Organizing New York State for Educational Change. Albany, New York: State Education Department, 1961.

Reducing educational lag. Mort and Furno[5] in their studies at Columbia pointed out that the lag between the creation of an educational innovation and its use in the field is about fifty years. There are probably many reasons for their findings.

Many teachers are not satisfied with the learning situation. They are all too aware of their failures. They attempt through trial and error, usually alone in their search, to find a more effective way to bring about learning. A few hours in a faculty room at the close of the day, especially Friday, should convince even the most calloused skeptic that teachers are searching for more effective learning techniques.

It may be that the key to effective research is as simple as establishing a partnership between the researcher and the teacher. It is Brickell's[6] contention that the three functions of design, evaluation and dissemination must be clearly identified and a structure set up to execute each phase before the lag will be cut. It is conceivable that the college-community school could offer such a structure and the result would be an interesting and challenging opportunity to the community if it dares to invest in these possibilities for a bold advance.

---

[5] Miles, Matthew B. Innovation in Education. New York: Columbia University, Teachers College, 1964.

[6] Brickell, op. cit.

Marriage of the teacher, the scholar and the researcher. Once upon a time a man could be and often was all three: a teacher, a scholar and a researcher. The knowledge explosion, the increasing sophistication of technique and technology, and lack of interdisciplinary approaches have now more often distributed these functions among three people. These same dividing forces have built ever growing walls, until it is difficult to communicate about learning, much less be jointly involved in the process of learning. At the very least we must try to find new ways of relating, if we are to cut the lag between discovery and practice.

The in-service education of its staff has become an accepted function of almost every public school system. In the development of such programs the existing college course structure has been found wanting. The individual training needs of a specific school system require special approaches. The results are usually slow in developing. A lag appears. The school-community laboratory conceived herein would tend to eliminate such lags, and might lead to the development of significant new patterns for in-service training programs elsewhere.

Research and development. Administrators and boards of education are becoming increasingly aware of the fact that education must spend part of its funds on the improvement of learning through the research and development of its own learning program.[7] A few pioneer schools have directors of research, and programs which search for better and more valid answers. Unfortunately, these professionals are frequently hand bound by a lack of funds or the authority and perhaps the responsibility to conduct even applied research. The college-community school could and should offer the school system an opportunity to conduct applied research in some areas which it identifies as primarily of local application.

Parsimony--materialist considerations. Even the most conservative of the lay citizenry will understand that the school can benefit materially from the proposedpartnership of a college and a community in a research-oriented school as envisioned in Chapter IV. Even though the citizen may place little value on research and development, he can be attracted by the fact that at the very least he will not have to provide housing for a substantial group of the community's children (provided that the excess cost of educating those children participating in the program is born by the college and thus does not off-set the gain.)

So far in this treatise the scales have been heavily weighted for the positive side of the debate. It is time to turn to the possible learning losses or threats to the learning climate.

Nay: Losses, Threats, Dangers

Lack of continuity. The public school educator sees the formal schooling of a child as assisting the transition of the child from the close, intimate protection of his home through a gradual development process to the self-reliance, self-discipline and independence of young adulthood. In his earliest experiences we use self-contained classrooms, single teacher identity and instruction related to the home and neighborhood. When the adjustment to the simpler school environment is complete we being to broaden the horizon of his experiences with other people and with knowledge of new things.

---

[7] Miles, *op. cit.*

In the development of curriculum we attempt to give the child preparatory experiences which will make the voyage from the known to the unknown a little easier. The increments of learning can be and should be planned with attention to continuity and articulation both horizontally and vertically. The effectiveness of this sequencing, we believe, can be a significant factor in determining the effectiveness of each learning situation. Thus any rotation or selection of pupils which disrupts this normal ordering of instruction or placement of children may result in some decrement to learning. The superintendent and especially the principal of the research-centered school must be alert to the need for continuity.

Educational deficiency. If one dares to discover, one must also dare not to find. Not all research is successful in achieving positive learning results. The sacred trust or responsibility of the school to properly educate cannot be placed on the gaming table of probability without safeguards.

Decrements in learning do occur occasionally in all school systems. The illness of a teacher or pupil or the accidental errors of a newly prepared teacher sometimes account for them. The school provides special help for the pupil to correct or to make up these decrements. Research projects of short duration present no special problems. Any losses could be corrected in the normal process of instruction. However, in the case of projects which may extend over a year or more special instruction must be available if needed. Although cases should be rare, the greater the risk the greater should be the precautions. The research must not begin until a plan for any possible needed remediation is assured.

Dual goals or value systems. Although the goals of the college and the public schools are in many ways similar, they also differ radically on other dimensions. A college is and should be academically oriented; the school is less so because of its attempt to meet the needs of all children and to protect the sacred trust of its responsibility to parents. The public school cannot select as pupils only those who are capable of rapid learning. It must accept all and attempt to carry each from where he is toward the infinity of his learning potential. How far and how rapidly he progresses and the quality of his development can be one measure of the educational effectiveness of the school. The emphasis should be focused on the individual learner rather than the institution. The child should be the first concern. Also, the attitude of laymen is more apt to influence school decisions than to affect college decisions. Although, other examples of divergent goals could be given, consider now the differing responsibilities of the college and the public school system.

Dual responsibilities. Many criticisms of higher education have recently been expressed in such phrases as "publish or perish," and "the academic marketplace." But, the college cannot be solely concerned with instruction. It has a dual responsibility for it must also add to the total of knowledge through research and discovery. The serious challenge in the public school arena is concerned with the lack of scholarship on the part of teachers and administrators, the mediocrity of the learning which may occur if more attention is not given to the disciplines of knowledge. Yes, not only do the goals vary, but the critics' value judgments vary, too!

The public school is more responsive to the wishes of lay citizenry and State Departments of Instruction. Few public school teachers expect the "academic freedom" which college teachers enjoy with little question. Even the most casual reader would suspect that the responsibilities of a college scholar, teacher and researcher would be quite different from that of the classroom teacher. Which needs will be met by the research-oriented school?

Public suspicion. Here lies a formidable foe! The lay citizen, whatever his background or whatever his reasons, increasingly questions the infallibility of the teacher's judgment. The citizen is in many instances negatively oriented to his increasing dependence on others.

He feels swallowed up by the bigness of the system which educates his children. It may be because the now schools are larger than the school which he attended. Or, perhaps he feels inadequate in trying to comprehend how the new school functions. He often fears the direction which public education seems to be taking. He knows that his taxes are increasing. He is aware that somehow schools are not meeting his goals for his children. It is doubtful that this problem will decrease or even remain at its present level. The recent national wave of conservatism witnessed in the 1964 presidential campaignand the growing strength of the John Birch Society and conservative political parties has been reflected in the increasing number of attacks and litigations directed toward the guidance and psychological services provided in modern schools. In the now famous VanAllen case in New York State the school's right to maintain confidential records was challenged and lost.[8] In New York City the use of intelligence tests has been discontinued because of community pressures from vocal and politically potent minority groups. If the lay citizen is hesitant to allow the guidance counselor or the school psychologist to work with his child, how then can he allow the researcher to do so?

Invasion of privacy. A significant percentage of the recent attacks on public school guidance and psychological services are related in some way to the individual pupil's or parent's concept of his right to privacy. The parent who holds this position insists that the school provide a learning experience free from inquiry or research. The current book, The Brain Watchers, by Martin L. Gross,[9] and The Branded Child, by VanAllen[10] tell a story of the parent outcries against the invasion of the privacy of their and their children's lives. One may question the basis of such books that so vividly expose the issues involved. However, there is some reason to believe that a careful study of recent incidents of attack will show that the key issue is not one of privacy or a fear of research and experimentation, but rather that the parent believes the choice of whether his child participates or not should be his and not that of school personnel.

---

[8] VanAllen, op. cit.

Solution of some one else's problems. America has been isolated and insulated from the world's problem by good neighbors and two oceans for much of its life. Historians remind us, and certainly many of us can remember, the American concept of isolation that prevailed before World War II.

When schools and communities indicate a certain smugness concerning their ability to cope with their problems and indicate they believe not only that they can solve their problems, but they feel that other schools should solve their own problems, too, perhaps they are but reflecting the America of the past. One need only turn to the issue of federal aid to education or the segregation issue to see that although there is progress, the basic questions are still being fought out in a bitter and sometimes a self-destructive manner. For whatever reason, "selfishness" or "rugged individualism," it is still difficult for the lay public to embrace altruism.

---

[9] Gross, Martin L. The Brain Watchers. New York: Random House, 1962.

[10] VanAllen, op. cit.

Theory, Research and Practice

At this point of summary the timid will say that the college-related school is a lost cause and that more harm than good will come from such a venture. The imaginative and possibly naive administrator will wonder if the disadvantages and dangers are indeed insurmountable. It is the position of this chapter that the school and community can be protected, that the sacred trust can be held inviolate and that, most important, the advantages of a research-centered facility can be reaped. If the reader is unable to wait for a few pages of what is hoped will be a pertinent orientation to the solution of the problems of learning decrement, he can turn immediately to the last pages of this chapter and find out if the answers warrant digression at this point. School faculties, in general, have a meager understanding of the relationships between theory, research and practice. This may also be true of many college faculties. Schools are just beginning to awaken to the fact that research and development should be a part of any institution in a rapidly and dynamically changing society.

In Chapters II and III of this report the writers indicate that the greatest barrier to the effectively functioning research-oriented laboratory school can be the faculty of such school, or, to state it in a different perspective, the key to success or failure can be related more positively to staffing factors than to facility arrangement.

Why is this true? Consider for a moment the concepts of theory, research and practice.

Public school educators are aware of the fact that research in the area of education is increasing. They attempt to search out its implications. However, at present there is a no man's land which exists between the researcher and practitioner. In those confrontations which do occur, it is doubtful that real communication occurs. Journal abstracts are written for researchers, not for the practitioner. There are a few good summaries of research such as the N. E. A. series, "What Research Says to the Teacher," and the Encyclopedia of Education Research. But, these summaries are lagging behind research even at their dates of publication, and are often five to ten years behind current projects.

The college and the community must accept a definition of research in which each can clearly identify his role. It is important that the relationship be one of a partnership which is based on a respect for the mutual roles. Neither party should consider itself subordinate to the other if a working kinship is to be sought. Research is meaningless in the learning situation if it cannot be applied, and teaching is inefficient when it ignores the implications of research.

What definitions would be comprehensible and acceptable to a practitioner? The school-oriented person can accept the definition of theory as an explanation of what exists. All behaviors in the learning situation related to a theory should be capable of explanation by the theory. Definitions of theory should include some reference to speculation. Although speculation is not fact, neither is it fancy. When speculation is carried on by informed people the search for solutions to problems can be expedited. The null hypothesis is not always difficult for the teacher to understand if he sees the interrelationship between speculation and theory. A definition which encompasses this reasoning is attractive to the practitioner. He feels comfortable in his role and relationship to theory and practice.

The experienced practitioner tells the new teacher, "you will have to forget the theory. In the field of teaching, theory is a poor guide. That which works is successful, not that which is supposed to work, etc." The college professor continues to repeat the old cliches such as, "reducing class size results in more effective learning," "greater per pupil expenditures produce quality school systems," "homogeneous grouping results in higher academic achievement, etc." The practitioner and the college professor do not stop often enough to point out that there is evidence to support these ideas but that they are not established without question. There are no simple, direct answers, but only hints and possible paths to try in the search for more effective learning. In truth we still know very little about the way in which human beings learn. There is reason to believe that teachers tend to accept and implement that research which reinforces their own beliefs and need structures. This complicates the problem even further.

Very little communication will occur until a better understanding of the role of research in education is held by the college teacher, the researcher, and the practitioner. The practitioner can be the forward line of trial and test. His findings could aid the researcher, and his guesses about where and why the hypotheses breakdown might become a valuable tool in the research process. The college-community research-centered facility offers a place to start--a beginning to the partnership of theorist and practitioner.

It is trite to say that the public school educator is unaware of the changing environment in which he exists. He teaches almost daily the changes he sees. The unmet dimension is that the educator cannot or has not related himself to being an active participant in the change process. Indeed, there are some evidences of change on the educational scene, but few are in reality changes above the level of the reweaving of the same old elements into a description of a new approach.

The fact that much of what today passes as good education has not been adequately evaluated is well recognized. The public educator cannot and has not waited for the researcher to test each new idea before it is implemented. This is as it should be. However, the real professional crime is perpetrated when research has raised serious criticisms of an existing practice and the practice remains untouched and unchanged. This is flying in the face of reason. Research is uncovering almost daily the potentialities of new approaches. If then, the public school educator is aware of change and the researcher has something of importance to offer, where is the problem? Modern educational theory holds that at least part of the answer lies in a need for a new and in most cases a virgin commitment of funds, staff and facilities within each school system for the purpose of applied research and development. This movement toward applied research and development should parallel or pattern itself after the path so clearly trodden by industry in the past decade. Interest in the process of educational change as well as the forces which bring about or inhibit change has increased on the public education scene since 1962. The writings of Brickell, Trump, Miles, Heathers, Tippitt and Dennerill are proof of the trend.

When the college-community research-centered facility is conceived in a marriage of theory and practice and born of a partnership between a college and a public school system both of which are dedicated to the design, evaluation, and dissemination of promising practices, it should flourish. However, if it is planned as a hothouse for research and as a source from which springs a distinguished list of publications by professors, it will wither and die for the opportunity will have been missed to bridge the gap between theory and practice, the gap between ideas and their implementation.

The Plan in Action

Lathrop and Beal in Chapter III give us some insight into the problems which an implementation plan for a laboratory school should overcome. Bixby and Mitzel in Chapter IV suggest a design which should bring about the desired results. It now remains for the practitioner to relate the theory to practice. A first step should be an examination of the purposes or goals of a college-community research-centered facility. The desired outcomes can be and no doubt will be different for the school and the community. The earlier sections of this chapter which deal with the advantages to the public school can represent the goals of the public school. Let us turn to the college's considerations of a place for observation of teacher and pupil actions or interactions, a place for design and discovery, a place for the evaluations of new techniques, a place to begin dissemination. The public school administrator can not conceive of these goals being met, if it is necessary that they be met, within the confines of one school building or in a wing of an existent secondary school. The matter from this point should turn to a consideration of logistics. Will one child be exposed to a bold new approach or the evaluation of such an approach, and also observed by a researcher interested in pupil-teacher interactions? The answer must be "No." If this type of overexposure were to exist, the results would be meaningless in terms of research, theory or practice. We must ask the questions: How many practice teachers are to be trained? How many typical observations? How many controlled situations are we talking about? How many bold approaches in the design stage? How many in the evaluation state? How many in the dissemination stage?

These goals in order to be adequately met suggest that the laboratory school should be a part of a larger unit, and not an isolated unit. Accessibility to a large population might be necessary. How large?

Using a ball park figure and as one administrator's opinion, I would feel that a kindergarten through twelfth grade population of 5,000 pupils should be a minimum. A consideration which has not been touched upon is the duration and scope of a particular experiment. For example, larger populations would be required if total schools were to be set up to explore on an extended basis a school which uses reinforcement principles as a basis for instruction, or Bruner's cognitive approach,[11] or a school committed to a program of individualized instruction, or a school concerned primarily with the discovery and development of the creative potential of children.

Lathrop and Beal point out in very lucid terms that the major deterent to the development of campus-oriented schools has been the staffs of the schools and of their sponsoring colleges. They suggest that both faculties in most cases have been staffed by teachers or professors who were not equipped with the necessary research skills and/or attitudes which encourage innovations. They identify patterns of rigidity, excessive personality domination, and divergent faculty interests. Bixby and Mitzel suggest that the answer might be an organizational structure in which the following patterns emerge: the principal is "a permanent administrative and supervisory person who reports directly to the superintendent for programs, for pupils and for the leadership of the teaching faculty, which is selected jointly with the college." The teachers are regular members of the public school staff "who are selected for the research and demonstration school because of their interest in trying new ideas, and their willingness to work on research teams." "Assignments are for limited periods with constant opportunity for evaluation and honorable withdrawal whenever the teacher or principal feel reassignment is wise." The director of research is an assigned employee of the college who reports directly to the dean and who is jointly selected with the superintendent of schools "in order to secure a level of trust that permits cooperative planning of research projects with the principal and the teaching staff of the school."

---

[11] Bruner, J. The Process of Education. Cambridge: Harvard University Press, 1961, 81-92.

This suggested arrangement is workable and could be acceptable to the public school administrator and board of education in a forward-looking school system. If a college with a research and development thrust is fortunate enough to have available in its vicinity a school system which meets the description presented by Bixby and Mitzel, the proposed partnership has a chance of success. The road can be cleared as the laboratory school moved ahead. The path is unplotted.

It is not one to be traveled by the timid. Let us turn now to a consideration of the problem of public support.

Securing Public Support

Securing public support for any new and daring proposal should take advantage of the vast library of descriptive public relations stories which show successful and unsuccessful attempts. Many worthwhile projects have been wrecked on the rack of public opinion. The starting point of any project should be the securing of the support of the chief school officer and soliciting his help in gaining the approval of the board of education. A proposal from the superintendent to the board should be made in an exploratory manner, off the record, and in an informal setting. When the superintendent and board hesitate to move ahead it may be because they are uncertain of the reactions of the community and staff. They probably know only too well that the normal position of the public school staff and the college community will be against the formation of such a unit. The past record of college-community cooperative ventures is not particularly distinguished. The proposers of a new plan must be ready, willing and able to sell the new concept through every means available.

Securing Support from the Board of Education

The questions and concerns of the board of education will probably focus around their responsibilities and the safeguarding of the sacred trust as, for example, protecting a pupil's right to privacy.

In the case of research which the board is especially concerned about, a request might come to the homes from the school asking parents to volunteer their children. This approach can often result in a waiting list rather than a deficiency of desired subjects as has been demonstrated in the College Area Schools of State College, Pennsylvania.

Each parent should have the right to decide whether or not his child participates in reserach. When the parent has faith in the school's commitment to an education of quality and depth for his child, an original agreement about research could remain in force over the years of the child's schooling. The parent can be informed, briefly, about the nature and extent of research about to begin and invited to withdraw his child from the research project if he wishes. Experience indicates that very few children will be withdrawn if adequate care is given to maintaining open communication lines between school and homes.

Securing Support From the Community

Here are some questions which will surely be asked by community citizens:

How can we be certain that the children directly involved
will learn what is required of them?

Constant evaluation is a part of any research and when a deficiency does occur, remedial work should be provided. Few projects, if any, should present such a problem. Nevertheless, provision should be made to protect the total sum of learning.

How can we be certain that a child will not
be over-exposed to research?

The researcher is at least as much concerned as the public school educator. The experiment has lost much of its worth when his pupils have been over-exposed. Safeguards must be built into the plan.

How can we be sure that taxpayers' funds
are being used wisely?

The proposed building project would offer housing for a number of children without initial capital outlay to the school. In addition, the contract between the school system and college should provide for reimbursement by the college of any excess yearly operational costs. Thus the operational cost to the public school district for educating the child involved would be the same as for any other child in the district.

How can we be certain that no research project
will be conducted which may endanger the mental
or physical health of a pupil?

It is essential to any agreement that the board of education have prior knowledge of all unusual proposed research and have the authority to disapprove any project in which they believe there is a possibility of harm. The board should also receive a summary of completed research projects.

Each community has its power structure and it might be well after securing approval of the board, to sound out leaders in key spots of the political structure, officers of parent teacher associations, teachers' associations, service clubs, business and professional organizations and others. From this type of market analysis, the program can be designed for securing broad based community support.

Both parties, the school board and college, should be willing to provide speakers and public information releases explaining the pro's and con's of the college-community research-centered school. If both approach this project as a partnership conceived in an air of cautious optimism, entered with sincerity and openness, and sensitive to the needs of children, public support should be forthcoming. Every effort should be made to carry the story to every organizational group in the community which would like to hear the details. A series of planned releases should be coordinated through the news media.

Securing Staff Support

To say that the school and college staffs should be properly and adequately oriented to the proposed concept is perhaps unnecessary. However, the wise administrator will explore the proposition with his faculty before any public information program is begun. The conditions of the partnerships involved will be the field on which support will be won or lost. The following are examples of working conditions which should gain the support of staff if properly met and safeguarded:

Research assignments should be voluntary and revokable by either the school or the teacher at the end of each year, or earlier, in case of hardship.

The effectiveness or efficiency of a teacher shall not be questioned because of the negative results of a particular project.

Adequate preparation time and relief from excessive loads must be provided.

The teacher will be responsible for his performance to the principal and to the superintendent.

Adequate recognition will be given to those teachers and pupils who participate in significant research.

Any teacher will have the opportunity to apply for and receive assignment to the research-centered school if he meets the requirements of the assignment.

Adequate evaluative and remedial provisions will be provided to assure that each pupil will receive an adequate education of quality and depth.

The teacher, whenever practical and possible, will be made aware of the purposes of the research and the findings and conclusions of the research in which he is involved.

The relationship of the teacher and the researcher shall be one of equal partnership.

Adequate administrative and supervisory personnel will be assigned to the research-centered unit and these personnel shall be a part of the normal organizational structure of the school system.

All rights of the teacher in the basic school system shall be guaranteed regardless of assignment.

A system of rotating teachers through appropriate assignments in the research-centered school will be designed and understood by all. There should be enough teachers and administrators in each school system of size, who can be or are motivated to search out better answers to learning. In the beginning the number might not be great enough. But normal staff turnover and selective recruiting should provide the necessary continuing supply of dedicated, change-oriented professionals.

To Those Who May Still Doubt

The dream can become reality! The birth of the new research-centered facility will be difficult and may be beset with many crises. But, it is worth the effort! The times demand nothing less and perhaps a great deal more. The college and the school system who bridge the gulf described in Chapter IV should be willing to explore exchanging faculty members, to explore developing internships in areas of research and curriculum development, to explore in-service education as a joint function, using college facilities and staff for the quality uplift of the community school, to explore the possibilities of the placement of pupils in advance courses at the college prior to high school graduation and many other yet unimagined areas of cooperation.

Not all public school administrators will agree with what might appear as "turning over the program" to a college or university. It is conceivable that during the time of a waivering or hesitant public school leadership, the college could and probably would tend to dominate the school scene. However, the result could and probably would offer latent possibilities for an educational program of greater quality and depth than would be otherwise available under such conditions.

The final responsibility for curriculum and program development rests with the board of education and its public. It is doubtful that a college-related community would permit an ineffective program to exist for very long. No doubt impasses will occur and must be negotiated. University and public school staff members will be in conflict from time to time. But, the potentialities are worth the enduring of the problems and the chancing of the risks.